United States Department of the Interior
Bureau of Land Management

Taos Field Office

Final

Environmental Impact Statement for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico Volume 2: Proposed Riparian and Aquatic Habitat Management Plan

August 2000

BLM/NM/PL-00-008-1040

Mission Statement

It is the mission of the U.S. Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/NM/PL-00-008-1040

ABSTRACT

The U.S. Bureau of Land Management (BLM) Taos Field Office *Riparian and Aquatic Habitat Management Plan* (HMP) presents an adaptive management strategy for restoring and protecting riparian areas administered by the Taos Field Office. Riparian habitats are critical, but very small, areas in relation to the large amount of land administered by the BLM. Riparian areas under BLM jurisdiction are often only small segments of a larger area over which the BLM has no management responsibility or authority. The BLM plays an important, but limited, role in improving and protecting riparian habitats in New Mexico.

This HMP presents a sequence of tasks for individual riparian areas that, when implemented, will provide a systematic method of achieving proper functioning condition (PFC) and long-term stewardship of threatened and endangered species habitat.

Although the BLM has been implementing restoration and protective actions for selected riparian areas in New Mexico for over a decade, development of measurable goals and endpoints for restoration activities has not been undertaken because of informational and planning needs. For example, additional scientific data for riparian habitats will be obtained and utilized, and proactive strategies for accomplishing riparian-wetland management objectives will be developed and implemented in the HMP. This HMP assigns highest priority to implementing those management practices identified in current BLM management guidance for restoring and protecting all riparian habitats under BLM jurisdiction. For riparian areas, the HMP requires a specific focus on riparian management; decisions regarding other land management activities will be constrained to limit or prevent any adverse impact on riparian areas.

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ABBREVIATIONS/ACRONYMS

ACEC	area of critical environmental concern
BLM	U.S. Bureau of Land Management
DEIS	draft environmental impact statement
EIS	environmental impact statement
FAR	functional – at risk
FEIS	final environmental impact statement
HMP	habitat management plan
MOU	memorandum of understanding
MSL	(above) mean sea level
NF	nonfunctional
NMDG&F	New Mexico Department of Game and Fish
OHV	off-highway vehicle
PFC	proper functioning condition
TR	technical reference
U	unknown
USFWS	U.S. Fish and Wildlife Service

1 INTRODUCTION

1.1 REASONS FOR PREPARATION

The purpose of this Habitat Management Plan (HMP) is to provide guidance for the restoration and protection of riparian habitats under the jurisdiction of the U.S. Bureau of Land Management (BLM) in the Taos Field Office, New Mexico. The goal of riparian-wetland area management is to maintain, restore, improve, protect, and expand these areas so that they are in proper functioning condition for their productivity, biological diversity, and sustainability. Although the BLM has been actively managing riparian habitats in pursuit of this goal for over a decade, the need to place special emphasis on these important resources was triggered by legal action against the BLM. The lawsuit was settled when the BLM agreed to complete an Environmental Impact Statement (EIS) for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico, including this HMP.

Riparian areas constitute a small, but critical, percentage of lands administered by the BLM in New Mexico. Figures 1.1 through 1.4 illustrate the riparian areas under BLM jurisdiction in the context of the total surface lands contained within, and administered by, the Taos Field Office. Figure 1.1 shows the location of the jurisdictional boundaries of the Taos Field Office within New Mexico; Figure 1.2 shows the distribution of riparian areas that are under the jurisdiction of the BLM and that are being addressed in this HMP in the Taos Field Office; Figure 1.3 shows the major physio-graphic features in the Taos Field Office area; and Figure 1.4 shows the management jurisdiction of land areas within the boundaries of the Taos Field Office.

1.2 ECOSYSTEM DESCRIPTIONS

Riparian areas are localities directly influenced by permanent water, with visible vegetation or physical characteristics that indicate that influence. Although lake shores and stream banks are typical riparian areas, springs, seeps, and normally dry drainages that have a shallow water table with vegetation requiring permanent water also are classified as riparian areas. In semiarid settings, such as the lands managed by the Taos Field Office, even small riparian areas often play an important role in managing overall ecosystem health, despite their small size and (frequently) dispersed geographic distribution.

The BLM assesses the condition of riparian areas on the basis of selected physical and vegetative characteristics. During the late 1980s, the BLM employed a classification system based on stream bank condition, vegetative bank protection, and the status of the main water source(s), and assigned a rating to each: (1) 1.0–1.9 [Poor]; (2) 2.0–2.9 (Fair); (3) 3.0–3.9 (Good); and (4) 4.0 (Excellent). These ratings were then averaged to obtain an overall classification rating for each riparian area.

Recently, riparian habitats have been classified as one of the following four categories: (1) Proper Functioning Condition [PFC]; (2) Functional – at Risk [FAR]; (3) Nonfunctional [NF]; and (4) Unknown [U] (BLM 1998a). These ratings reflect hydromorphic, vegetation, erosion/deposition, soils, water quality, and, in some cases, external nonsystem-related factors. They are applied qualitatively, after a systematic assessment of each of the above characteristics. For a riparian

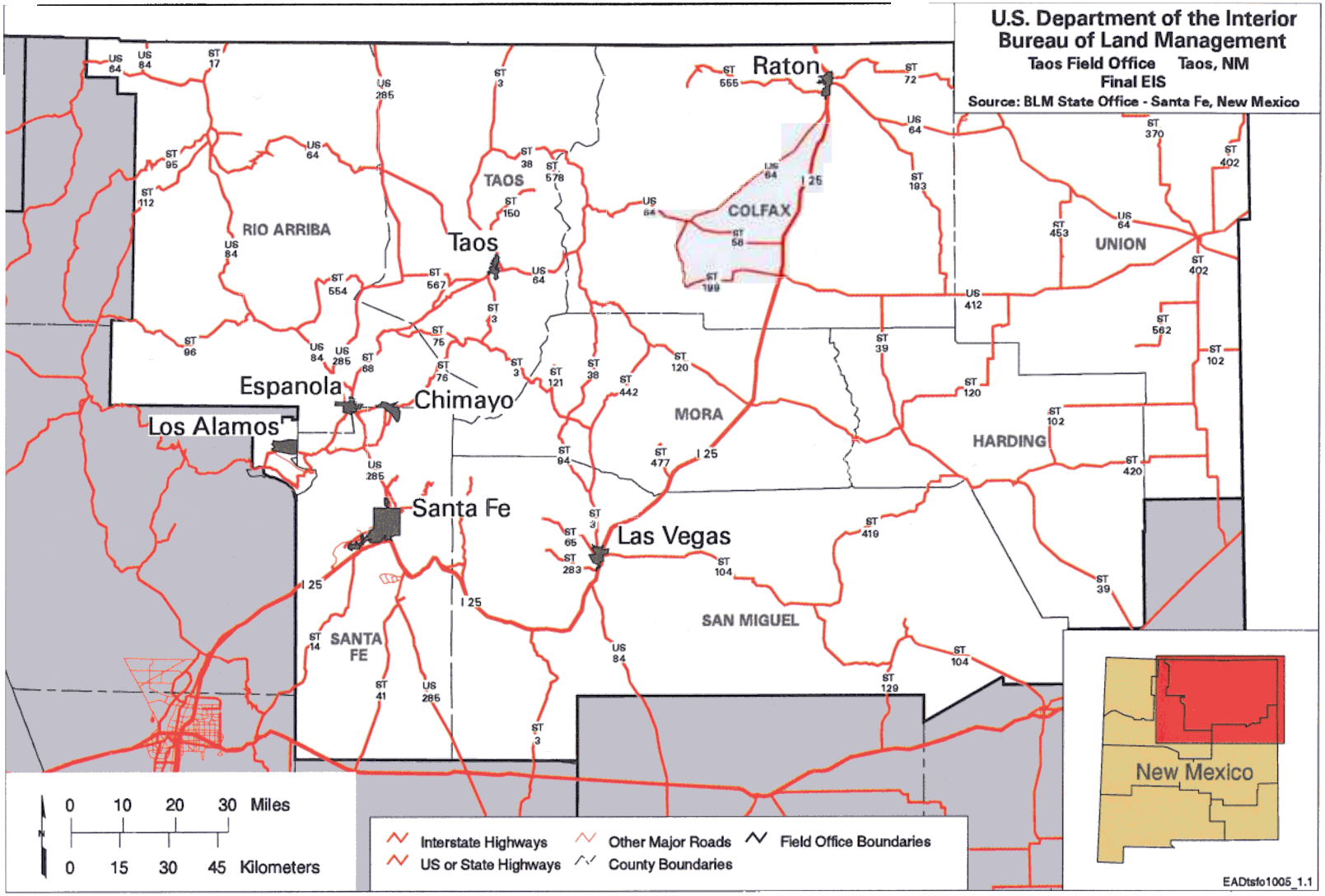

FIGURE 1.1 Taos Field Office Counties, Communities, and Roads

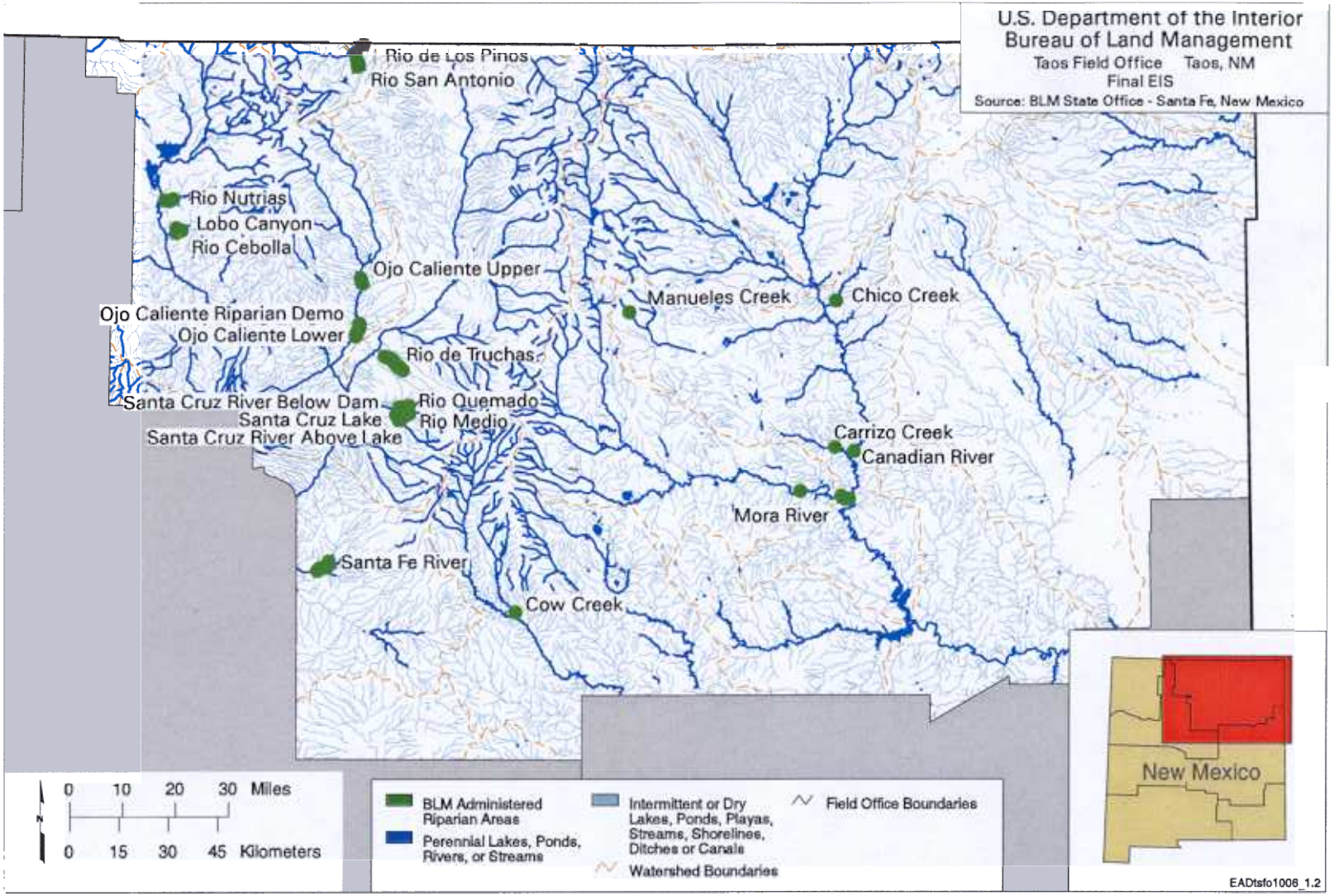

FIGURE 1.2 Taos Field Office Riparian Areas

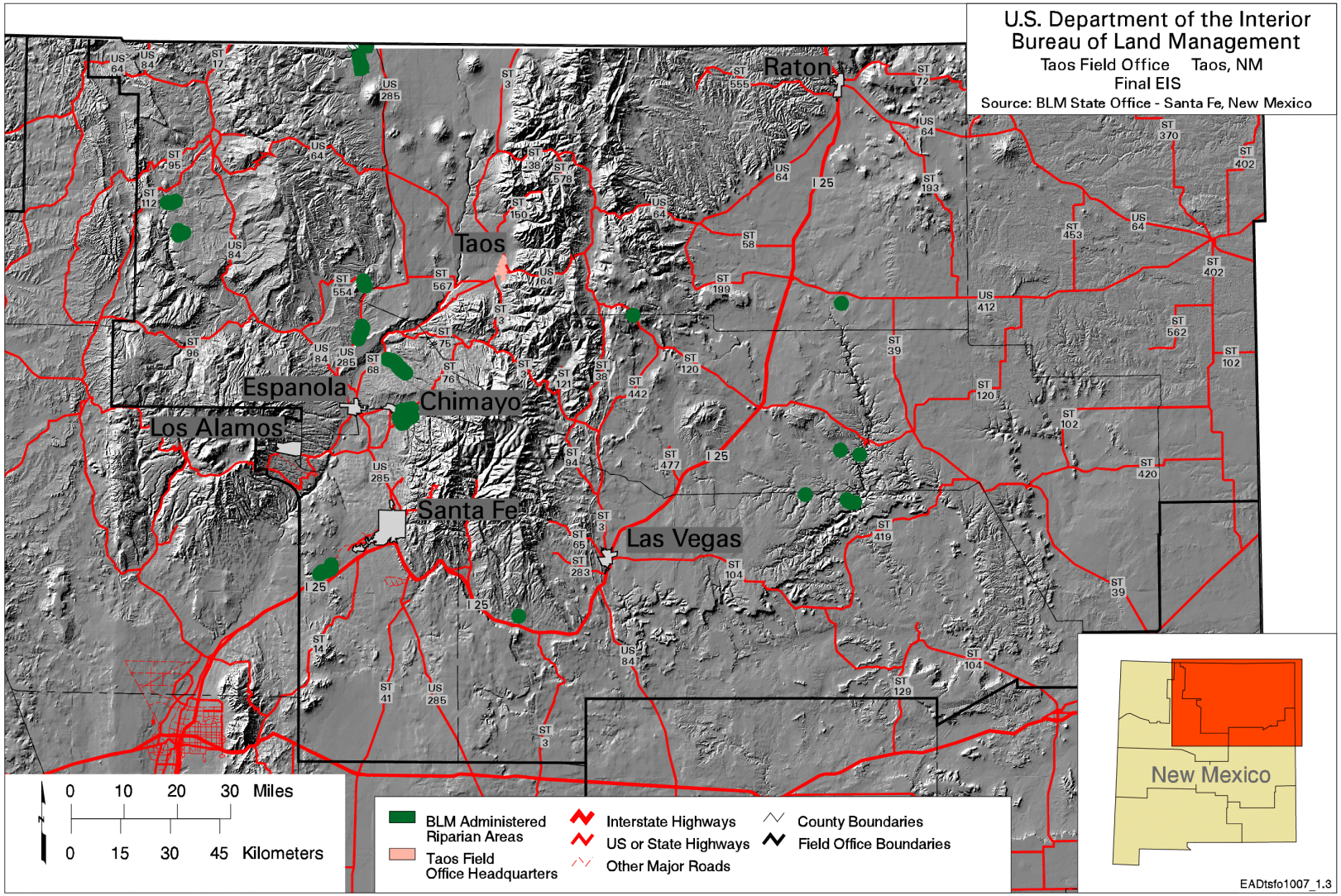

FIGURE 1.3 Major Physiographic Features in the Taos Field Office Area

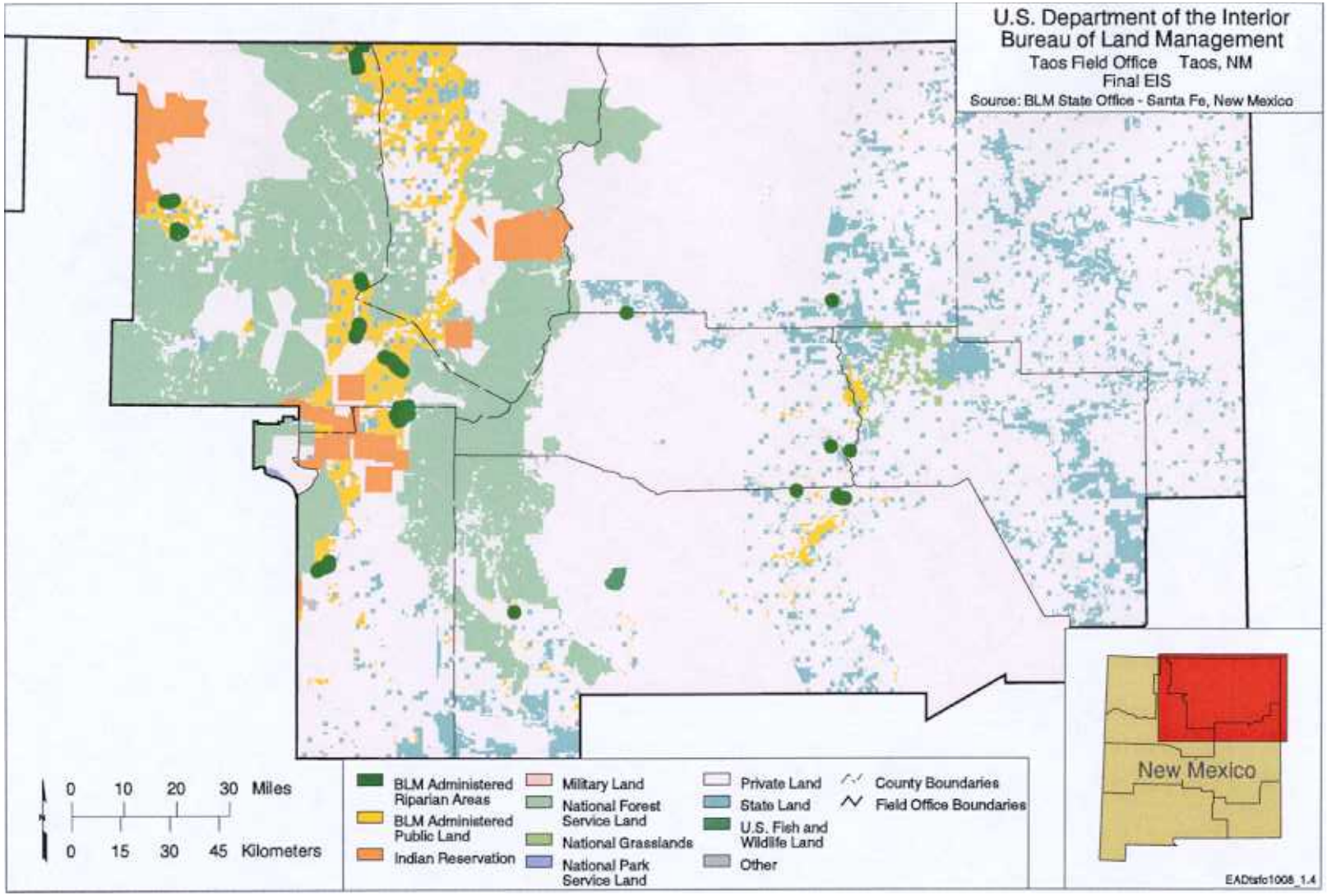

FIGURE 1.4 Taos Field Office Land Status

area to be rated as PFC, adequate vegetation needs to be present to:

- Dissipate stream energy associated with high water flow, thereby reducing erosion and maintaining acceptable water quality;
- Filter sediment, capture bedload, and aid in floodplain development;
- Improve water retention and groundwater recharge;
- Develop root masses that are capable of stabilizing stream banks against erosion; and
- Develop diverse ponding and channel characteristics that provide suitable habitat, water depth, duration, and temperature.

Divergence from any of these requirements reduces a riparian area's overall rating. When a riparian area is in functional condition, but soil, water, or vegetation characteristics make it susceptible to degradation, it is classified as FAR. Riparian areas lacking adequate vegetation, landforms, or large woody debris to dissipate stream energy associated with high flows, thereby lacking the ability to reduce energy and improve water quality, are deemed NF. Finally, those riparian areas for which the BLM lacks adequate data to evaluate their condition are classified as U. In addition, a trend is assigned to each riparian area classified as FAR [upward, downward, or not apparent (static)]. An upward trend indicates that the riparian habitat is improving with time; a downward trend is indicative of a riparian habitat with deteriorating conditions. A static trend indicates that changes in the condition of the riparian habitat are not apparent.

Both of the above rating systems have been applied to most of the riparian areas in the Taos Field Office that are discussed in this Final EIS (FEIS). The remainder of this section contains descriptions of the individual riparian areas, including their functional ratings. The figures presented with the descriptions show the spatial relationship between riparian areas and grazing allotments in the area under Taos Field Office jurisdiction.

1.2.1 Canadian River

The Canadian River riparian area is located 4,820 feet above mean sea level (MSL) and extends over 1 mile (covering 36.3 acres) in the southeastern part of Mora County (Figure 1.5). The source of water for this riparian area is the Canadian River, a perennial stream that is a major drainage on the eastern side of the Sangre de Cristo mountain range. The river has cut a 600 foot-deep scenic canyon through sandstone. Private land surrounds the BLM-administered tract. Vegetation in the area was classified as grama-buffalo grass 58 (Kuchler 1985), although pinyon-juniper woodland with scattered cottonwood trees and saltcedar also occurred. BLM staff noted very little erosion. This portion of the Canadian River provides winter foraging habitat for the bald eagle (federally listed as threatened) and peregrine falcon (formerly listed as federally endangered). The Arkansas River shiner (federally listed as threatened) occurs within this reach of the Canadian River.

BLM staff recorded light off-highway vehicle (OHV) use in the area, the evidence primarily being jeep tracks that extend into the riparian area. The staff also recorded light grazing within the area lying within Allotment No. 00853, and no grazing within Allotment No. 00892. No mining occurred in the area. The potential for oil and gas development was deemed low. The BLM determined the

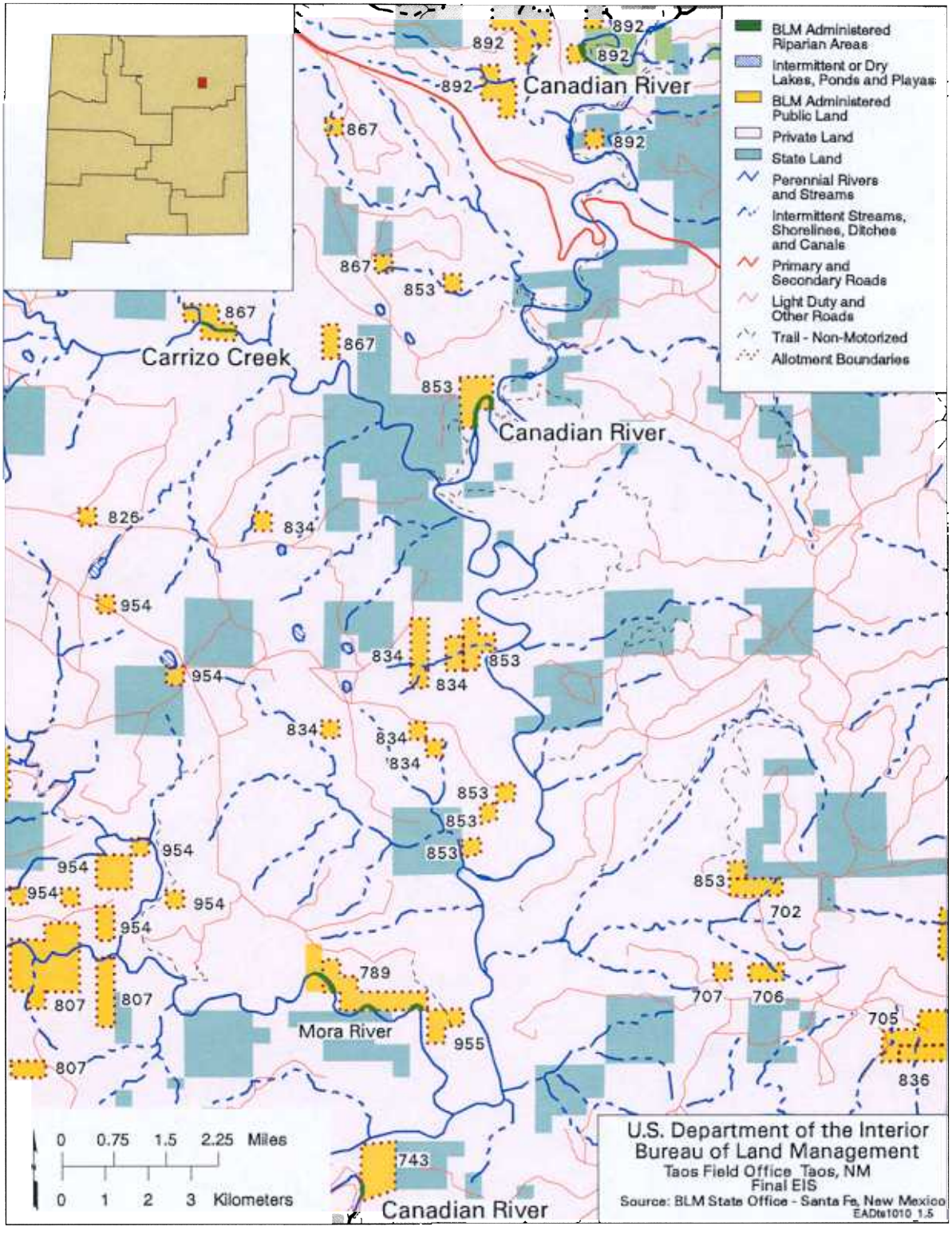

FIGURE 1.5 Canadian River and Carrizo Creek Riparian Areas

Canadian River riparian area to be in good condition on September 27, 1989, due partly to the presence of thick grass along the riverbank to protect against erosion. However, it was recategorized as NF (due largely to grazing and general riparian area degradation) when it was reevaluated on July 8, 1994.

1.2.2 Carrizo Creek

The Carrizo Creek riparian area is located at 5,780 feet MSL and extends over 0.5 mile (covering 16 acres) in the southeastern part of Mora County (Figure 1.5). Carrizo Creek, the source of water for this riparian area, is a small intermittent stream that flows into the Canadian River and cuts a small gorge near the confluence with that larger waterway. The riparian area is on land administered by the BLM, although it is surrounded by private land holdings. Vegetation consists primarily of grama-buffalo grass 58 (Kuchler 1985). BLM staff noted slight erosion along the stream bank.

OHV use was light and limited to a jeep track that crosses the creek. Grazing appeared to be moderate. Although the riparian area lies within Allotment No. 00867, much of the grazing activity likely was due to trespass cattle from surrounding private landholdings. No mining occurred in the area. The potential for oil and gas development was deemed low. In September 1989, the BLM classified the Carrizo Creek riparian area as fair. In July 1994, it was recategorized as NF, due largely to grazing degradation.

1.2.3 Chico Creek

The Chico Creek riparian area is located at 5,800 feet MSL and extends over 1 mile (covering 1.5 acres) in south-central Colfax County (Figure 1.6). The source of water for this riparian area is a small section of Chico Creek, which is a perennial stream flowing through grassland. The BLM-administered tract is surrounded by private landholdings. Vegetation in the area was classified as grama-buffalo grass 58 (Kuchler 1985). BLM staff noted some erosion along the stream bank.

Evidence for light OHV use was observed in this riparian area, although the flat grassland in which the area occurs makes it very accessible for such activity. Trespass grazing was moderate; many cattle were observed in the area, although the riparian area itself is not located within an allotment. No mining occurred in the area. The potential for oil and gas development was deemed low. In October 1989, the BLM classified the Chico Creek riparian area as fair. Since 1989, it has not been reevaluated in terms of its functioning condition.

1.2.4 Cow Creek

Cow Creek riparian area (two separate riparian segments) is located at 6,200 feet MSL and extends over 1 mile (1.8 acres) in the west-central part of San Miguel County (Figure 1.7). Cow Creek, the source of water for this riparian area, is a small perennial stream. The area and surrounding land are BLM-administered public land. Vegetation in the area was classified as pine-Douglas fir 7 (Kuchler 1985), although pinyon-juniper woodland and grass (along the streambank) also were noted. BLM staff observed evidence of some erosion along the stream bank.

No evidence of OHV use was observed, but four-wheel drive roads occurred close to the riparian area. The riparian area lies within grazing Allotment No. 00904; grazing activity was light to medium, involving cattle from nearby small ranches. No mining occurred in the area. The potential for oil and gas development was deemed moderate. In September 1989, the

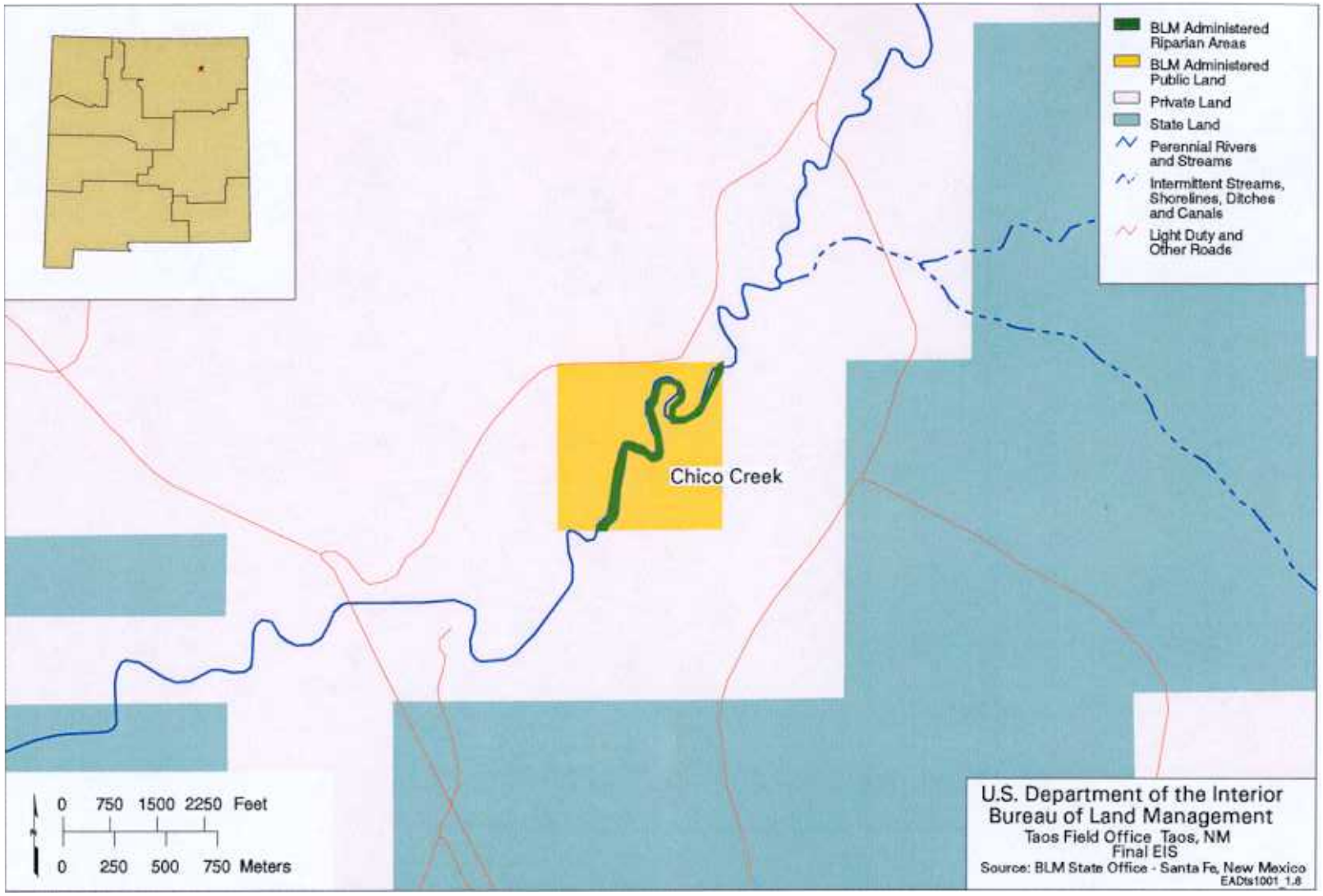

FIGURE 1.6 Chico Creek Riparian Area

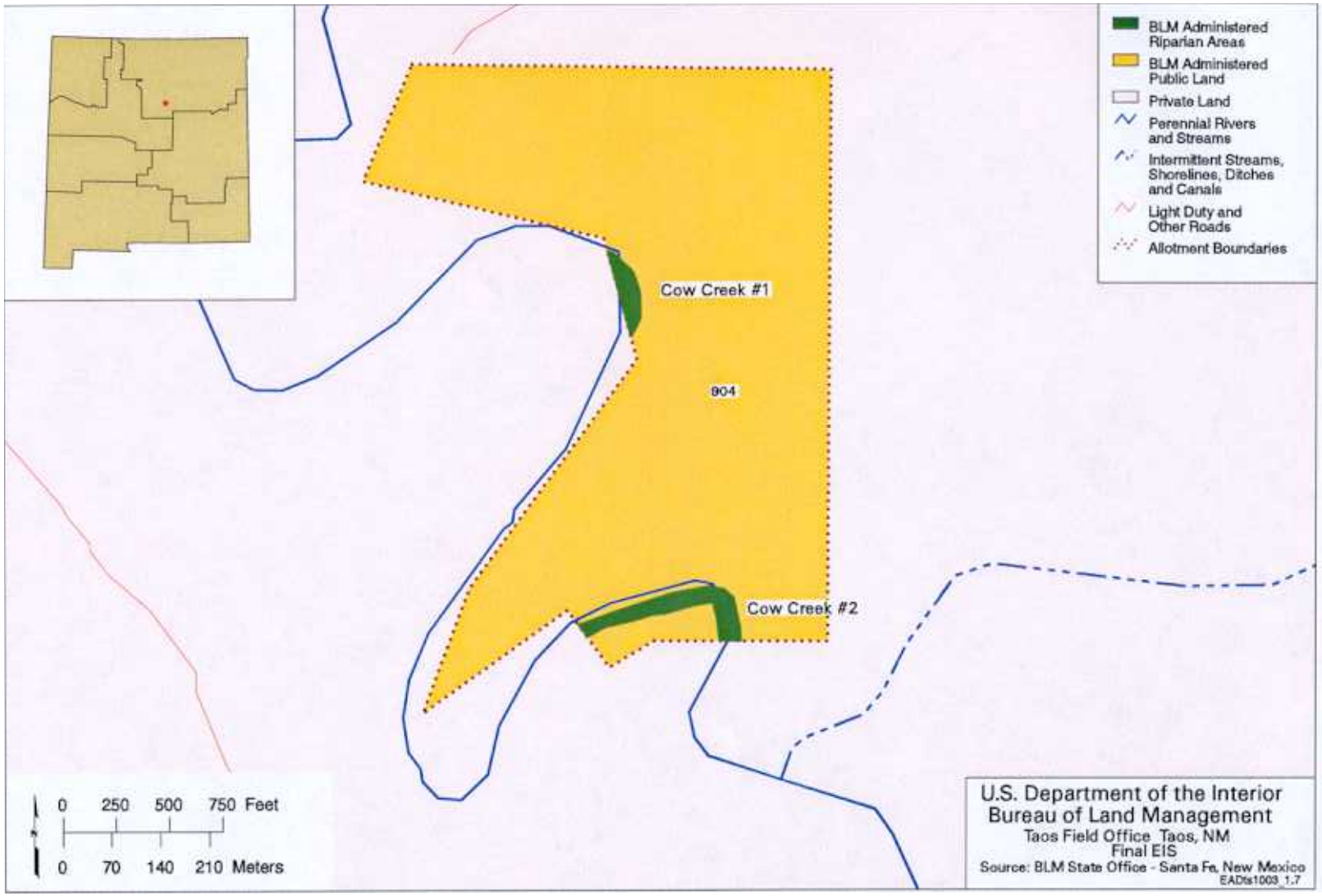

FIGURE 1.7 Cow Creek Riparian Areas

BLM classified the condition of the Cow Creek riparian area as fair. In July 1994, it was reassessed and rated as FAR, with problems largely attributed to grazing.

1.2.5 Lobo Canyon

Lobo Canyon riparian area is located at 6,780 feet MSL and extends over 0.8 mile (1.4 acres) in the east-central part of Rio Arriba County (Figure 1.8). The source of water for this riparian area is a series of small springs that flow into the Rio Cebolla. The area and surrounding land are administered by the BLM. Vegetation in the area was classified as pine-Douglas fir 17 (Kuchler 1985), although pinyon-juniper woodland and grass also were noted. Three coyotes also were observed near the head of the canyon at the time of assessment in the late 1980s. BLM staff observed evidence of some erosion near the springs. The Lobo Canyon riparian area supports potential long-term habitat for the southwestern willow flycatcher (federally listed as endangered).

No evidence of OHV use was observed; the lack of such activity is likely due to the rocky terrain and steep canyon walls. The riparian area lies within Allotment No. 00561, and grazing activity was judged to be moderate, particularly in and around the spring area. The riparian area on public land below the springs was fenced in 1998 to exclude livestock. No mining occurred in the area. The potential for oil and gas development was deemed moderate. In September 1989, BLM staff judged the Lobo Canyon riparian area to be in fair condition and noted its importance as one of the few perennial tributaries of the Rio Cebolla. Following a reassessment on September 30, 1997, the area was categorized as FAR, and the flow was identified as intermittent.

1.2.6 Mora River

The Mora River riparian area (several separate segments) is located at 4,860 feet MSL and extends over 1.5 miles (36.3 acres) in the northern part of San Miguel County (Figure 1.9). The Mora River is a perennial stream that has cut a deep (600 feet) canyon into underlying basalt and sandstone near its confluence with the Canadian River. The land on one side of the river is administered by the BLM (surrounded by private land); on the other side it is administered by the State of New Mexico. Vegetation in the area was classified as grama-buffalo grass 8 (Kuchler 1985), with associated pinyon-juniper woodland, mesquite, and acacia. Soil along the stream bank was quite rocky. Four barbary sheep also were seen inside the canyon. The Arkansas River shiner occurs within this portion of the Mora River. The riparian area along the Mora River provides winter foraging habitat for the bald eagle and peregrine falcon.

No evidence of OHV use was found; the absence of such activity is likely due to the steep sides of the canyon and its rocky bottom. The riparian area composes part of Allotment Nos. 00789 and 00898. Grazing activity was judged to be moderate, and cattle were seen on the canyon floor. No mining occurred in the area. The potential for oil and gas development was deemed low. Other possible problems include pollution from agricultural runoff (State of New Mexico n.d.). In September 1989, BLM staff classified the Mora River riparian area as good. In July 1994, they recategorized the area as NF, largely because of grazing impacts.

1.2.7 Manueles Creek

Manueles Creek riparian area is located at 8,600 feet MSL and extends over 0.5 mile (5.5 acres) in southwestern Colfax and northwestern Mora counties (Figure 1.10). The

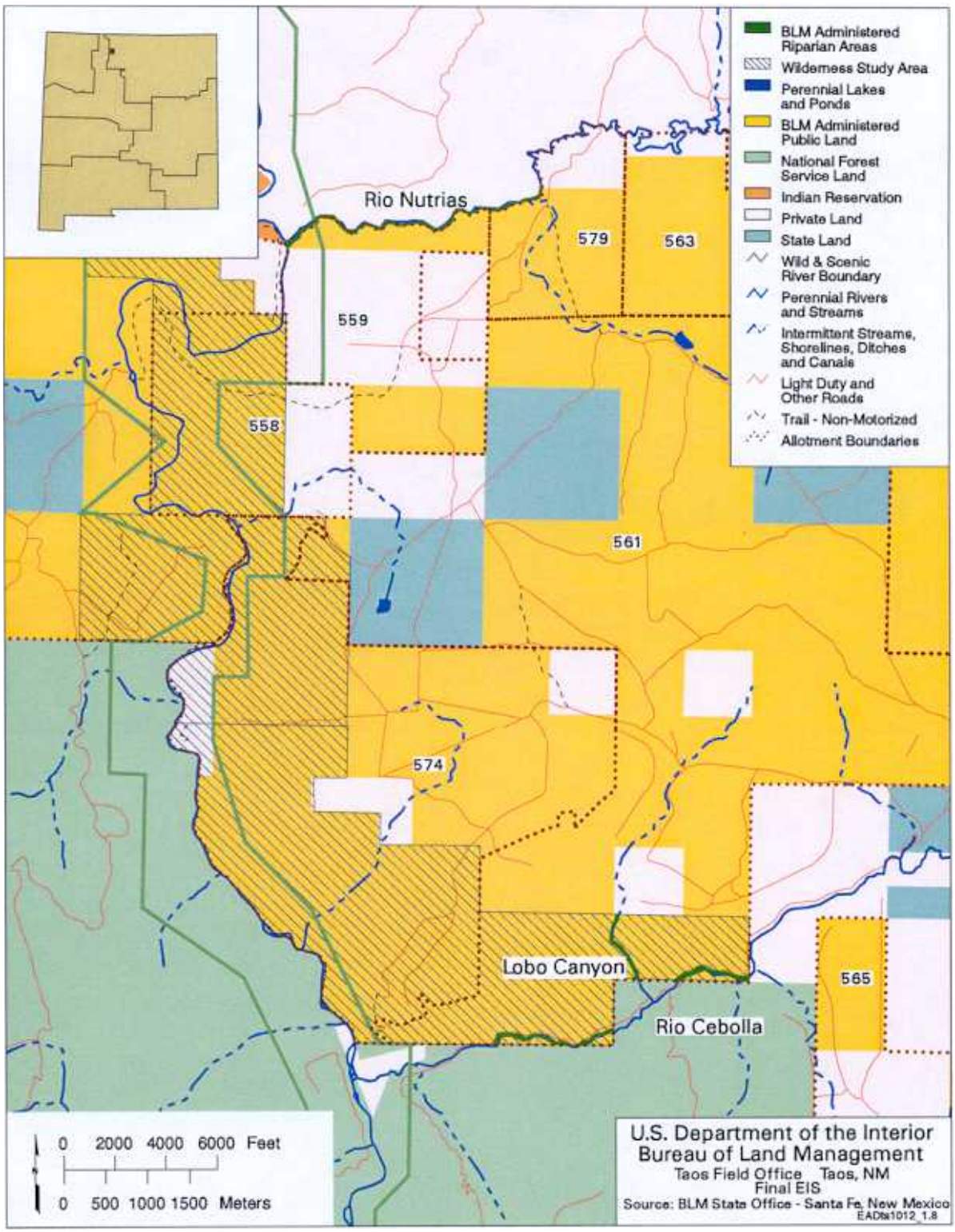

FIGURE 1.8 Lobo Canyon, Rio Cebolla, and Rio Nutrias Riparian Areas

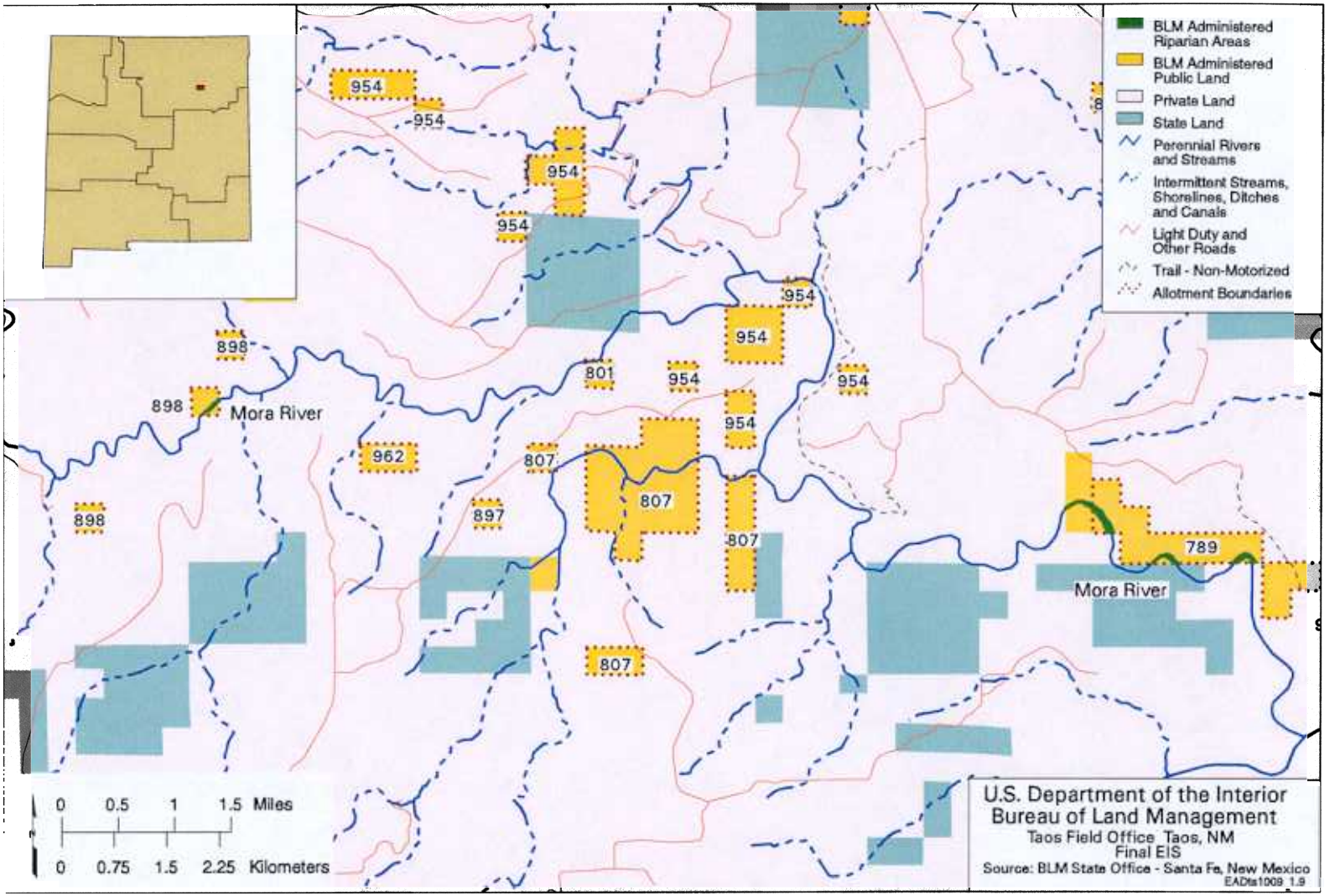

FIGURE 1.9 Mora River Riparian Areas

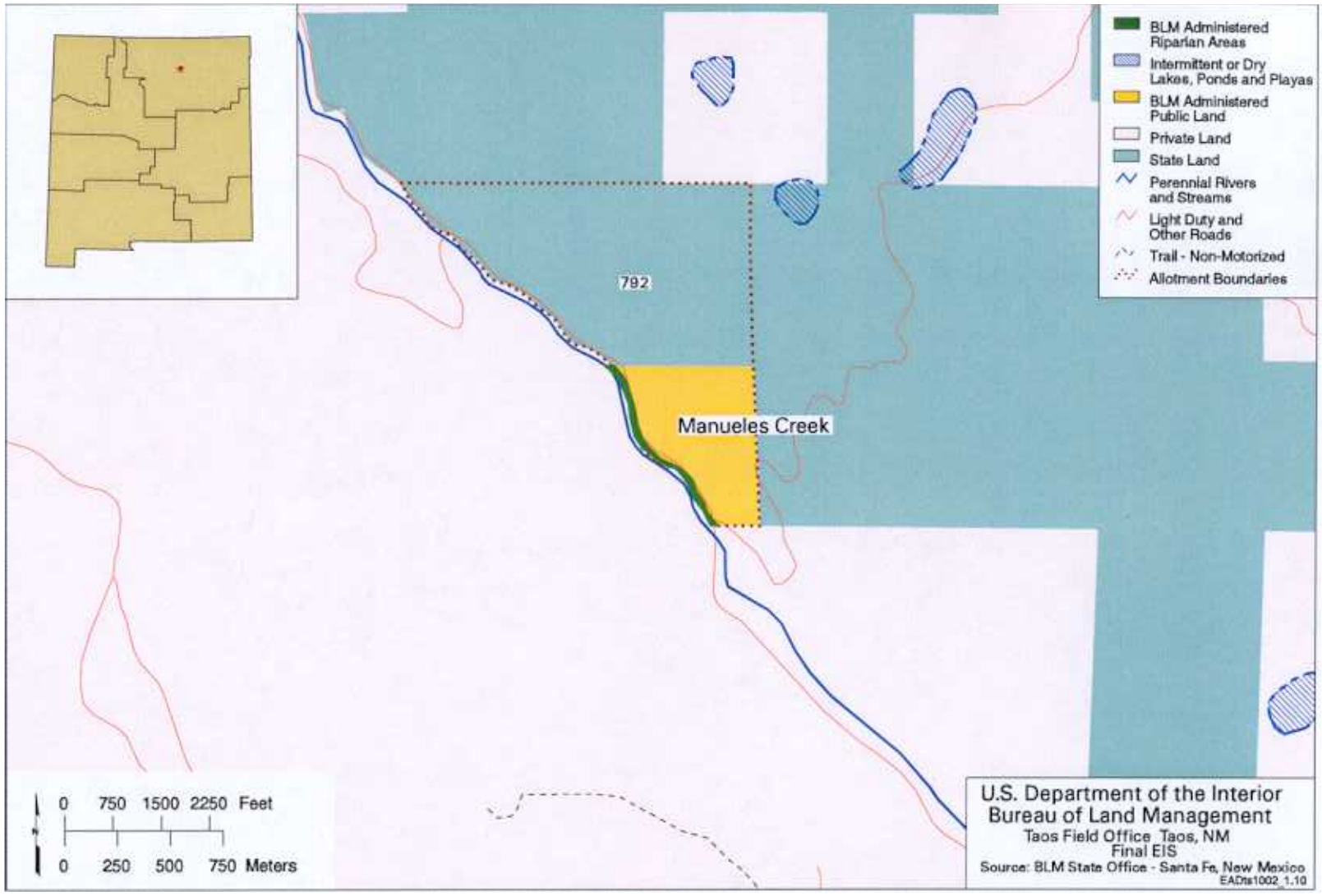

FIGURE 1.10 Manueles Creek Riparian Area

source of water for this riparian area is a small section of Manueles Creek, a perennial stream, and associated land in a much larger stream system. The riparian area and associated land are administered by the BLM in a location where many small parcels are owned or administered by many different interests. Vegetation in the area was classified as spruce-Douglas fir forest 20 (Kuchler 1985).

The BLM staff found no evidence of OHV use; the absence of such activity is likely due to the steep topography in the area. Similarly, no grazing or evidence of grazing was observed, although the riparian area occurs in Allotment No. 00792. No mining has occurred in the area. The potential for oil and gas development was deemed low. Potential problems include pollution from agricultural and road maintenance runoff (State of New Mexico n.d.). In June 1989, the BLM classified the Manueles Creek riparian area condition as good, although it was narrowly avoiding impacts from a proposed state highway project. In July 1994, the BLM reassessed the area as being in PFC.

1.2.8 Ojo Caliente Riparian Demonstration

The Ojo Caliente Riparian Demonstration Area is located at 6,100 feet MSL and extends over 1.25 miles (325 acres) in the southeastern corner of Rio Arriba County (Figure 1.11). The source of water for this riparian area is considered a perennial stream, even though surface water periodically disappears at specific locations during a few weeks from late June through early July. The area and associated land are administered by the BLM, although private tracts and private mining pits border the public land. Vegetation in the area was classified as pinyon-juniper woodland 21 (Kuchler 1985), with saltcedar, grasses, and forbs (including western wheatgrass, blue grama, Indian ricegrass, sand dropseed, sixweeks fescue, cheatgrass, little bluestem, and cocklebur), coyote willow, juniper, Russian olive, rubber rabbitbrush, broom snakeweed, and a few surviving cottonwood trees. Wildlife consisted primarily of small species and passerine birds that prefer open space. Soils were sandy with occasional concentrations of river gravel (see also BLM 1986). The Ojo Caliente Riparian Demonstration Area and the Ojo Caliente Upper Riparian Area (approximately 7 miles to the north) support potential long-term habitat for the southwestern willow flycatcher.

Evidence of light OHV use was seen; however, before the installation of fences in 1987, considerable OHV use occurred. The riparian demonstration area lies within Allotment No. 00505. Evidence of grazing was judged to be light, although any grazing is unauthorized, and fences were installed during the late 1980s to exclude cattle. No mining has occurred in the area. The potential for oil and gas development was deemed low. Other potential problems include pollution from agricultural runoff and recreation (State of New Mexico n.d.). In August 1988, the BLM classified the condition of the riparian area as poor, due largely to past abuses (OHV and grazing use). About two years prior to this assessment, the area was named a demonstration area to evaluate approaches to restore it to PFC. No formal reevaluation of its functional condition has occurred since 1988, although BLM staff familiar with the area indicate that its condition has improved markedly.

1.2.9 Rio Cebolla

The Rio Cebolla riparian area is located at 6,700 feet MSL and extends over 2.3 miles (8.3 acres) in the east-central part of Rio Arriba County (Figure 1.8). Rio Cebolla is a small perennial stream that flows into the Rio Chama. The riparian area and surrounding land are administered by the BLM. Vegetation in the

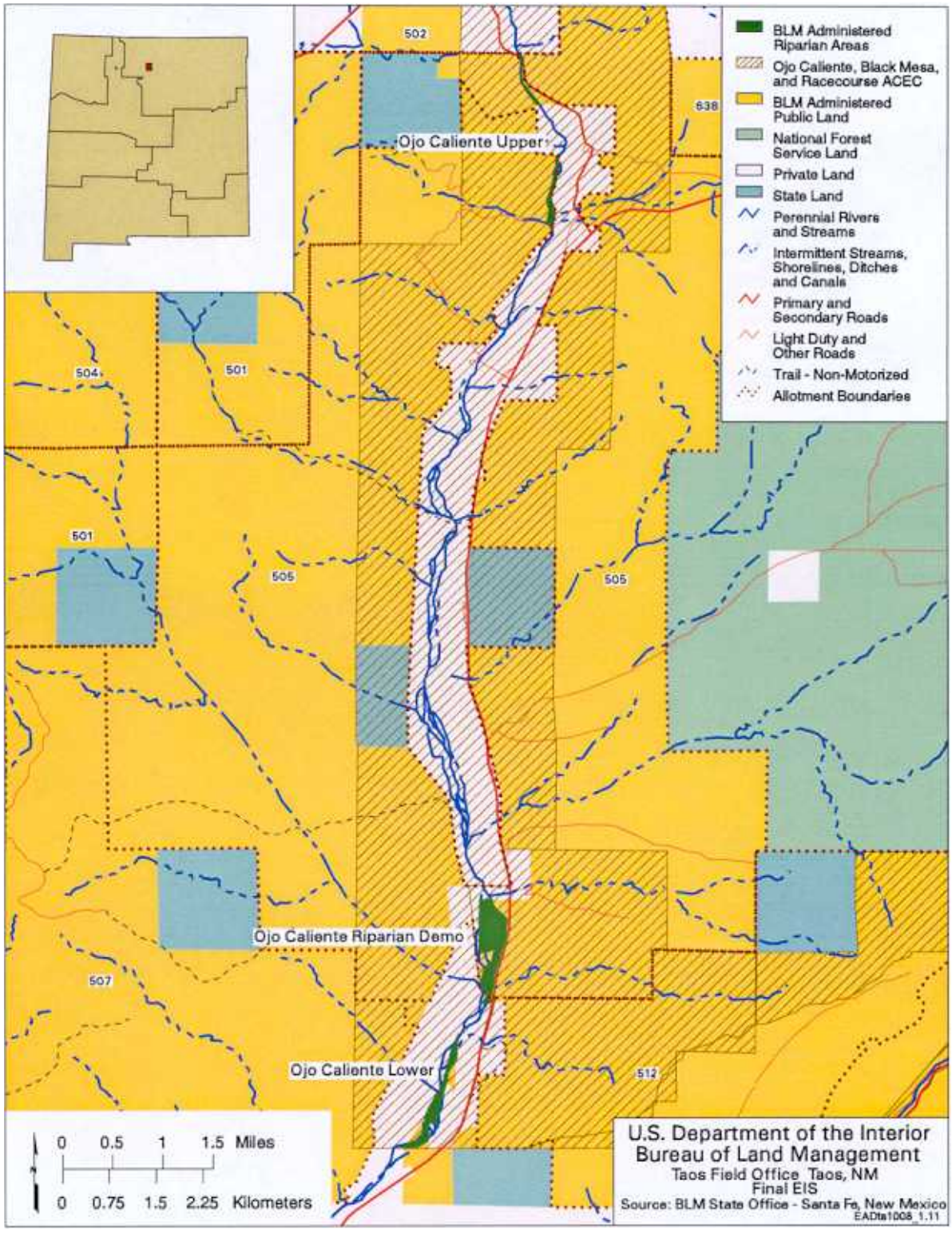

FIGURE 1.11 Ojo Caliente Riparian Demonstration Areas

area was classified as pine-Douglas fir 17 (Kuchler 1985), although pinyon-juniper woodland, Ponderosa pine, willow, and scrub oak also were observed. The Rio Cebolla riparian area supports potential long-term habitat for the southwestern willow flycatcher.

Evidence of light OHV use was noted and occurred along an old road near the stream, despite the steep terrain. Grazing was light and controlled in part by the terrain as well as by fences on the eastern section of the riparian area; a portion of the riparian area itself lies within Allotment No. 00561. Fencing in 1998 on Lobo Canyon, a tributary to Rio Cebolla, has resulted in the exclusion of livestock from the Rio Cebolla. No mining has occurred in the area. The potential for oil and gas development was deemed moderate. Other potential problems include pollution due to agricultural and road maintenance runoff (State of New Mexico n.d.). In September 1989, the BLM judged the condition of the Rio Cebolla riparian area to be good. Following a reassessment in July 1994, the area was deemed to be in PFC, with a riparian vegetation zone that had reached its limits.

1.2.10 Rio de los Pinos

The Rio de los Pinos riparian area (several separate segments) is located at 8,300 feet MSL and extends over 5.8 miles (77.3 acres) in the northeastern corner of Rio Arriba County (Figure 1.12). Rio de los Pinos is a perennial river bordered by BLM, U.S. Forest Service, State of New Mexico, and private lands. Vegetation in the area was classified as pine-Douglas fir 17 (Kuchler 1985). Some erosion and cut banks were noted. The Rio de los Pinos riparian area supports potential long-term habitat for the southwestern willow flycatcher.

BLM staff noted evidence of light OHV use, primarily associated with the recreational fishing that is quite important in this area. Portions of the riparian area are in Allotment Nos. 00584 and 00585. Grazing was light and limited primarily to the private tracts of land within the riparian area. No mining has occurred in the area. Other potential problems for Rio de los Pinos in general include pollution from agricultural runoff, road runoff, and recreation (State of New Mexico n.d.). In June 1989, the BLM classified the Rio de los Pinos riparian area as being in good condition, despite the large amount of recreation activity that occurred in the area. In July 1994, the area was reclassified as FAR, due largely to the diversion of water upstream.

1.2.11 Rio Medio

The Rio Medio riparian area (several separate segments) is located at 6,800 feet MSL and extends over 2.75 miles (36.5 acres) in the northeastern corner of Santa Fe County (Figure 1.13). Rio Medio, the source of water for this riparian area, is a perennial stream that serves as the primary tributary to Santa Cruz Lake. The area and associated land represent a combination of BLM-administered public land and private land. Vegetation in the area was classified as pine-Douglas fir forest 17 (Kuchler 1985); juniper was also noted, along with mountain alder, cedar, willow, hackberry, ponderosa pine, cottonwood, oakbrush, Kentucky bluegrass, fescue, wheatgrass, Apache plume, wheeler thistle, clematis, dandelion, gooseberry, aster, winterfat, poison ivy, and horsetail. The Rio Medio is regarded as one of the best trout fisheries in northern New Mexico.

BLM staff found no evidence of OHV usage. The potential for such activity is limited because of limited vehicle access. Evidence of moderate grazing was noted. The riparian area is within Allotment No. 00535. Although disturbance of the stream bank was observed, it had not yet affected bank stability. No mining

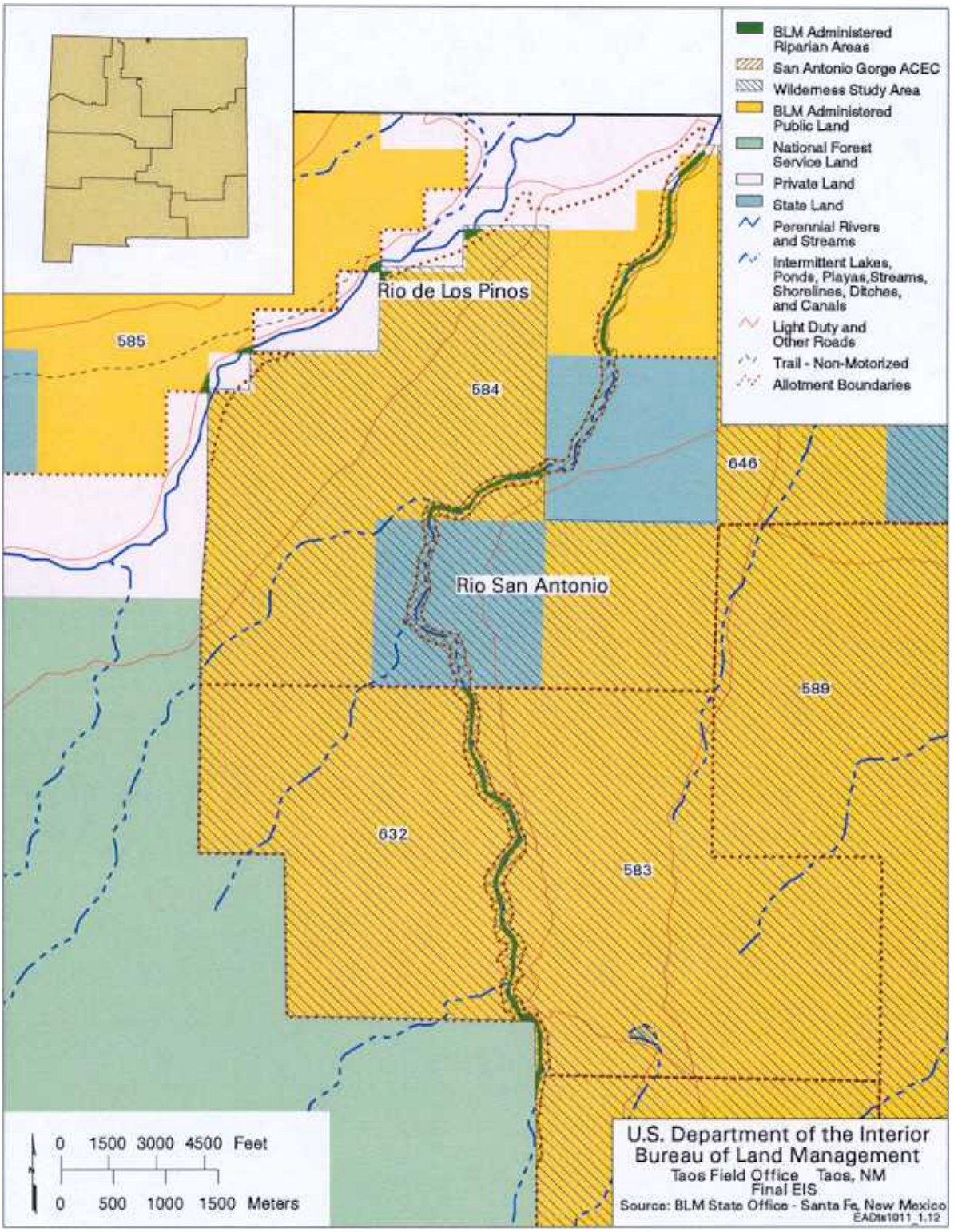

FIGURE 1.12 Rio de los Pinos and Rio San Antonio Riparian Areas

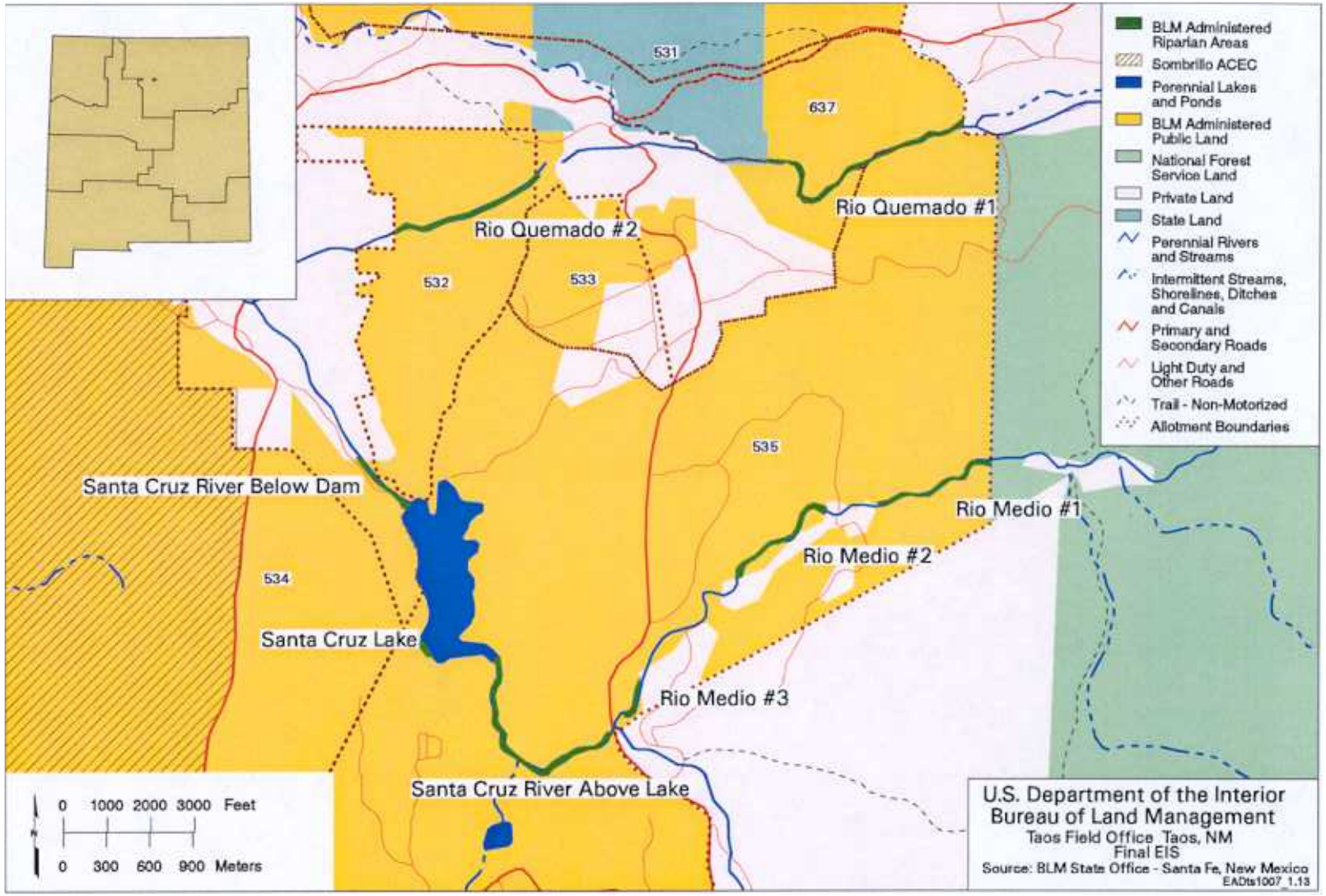

FIGURE 1.13 Rio Medio, Rio Quemado, and Santa Cruz Riparian Areas

has occurred in the area. The potential for oil and gas development was deemed low. In July 1994, the BLM categorized the Rio Medio riparian area as FAR; the main problem identified was grazing.

1.2.12 Rio Nutrias

The Rio Nutrias riparian area is located at 6,720 feet MSL and extends over 2.5 miles (12.5 acres) in the east-central part of Rio Arriba County (Figure 1.8). Rio Nutrias is a perennial stream that flows through a deep scenic canyon into the Rio Chama about 5 miles south of El Vado Lake. The riparian area and surrounding uplands are a mix of BLM-administered public land (southern side of the stream) and private land (northern side). Vegetation in the area was classified as southwestern spruce fir forest 20 (Kuchler 1985), with grass and willows present as well. The stream bank showed signs of erosion with high water. Water indicated heavy siltation, which is also consistent with erosion.

BLM staff found no evidence of OHV use. Grazing activity was judged to be light, with the riparian area including parts of Allotment Nos. 00559 and 00579. No mining has occurred in the area. The potential for oil and gas development was deemed moderate. Other potential problems include pollution from unknown sources (State of New Mexico n.d.). In September 1989, the BLM determined that the Rio Nutrias riparian area was in fair condition and cited problems with erosion associated with flash floods. In July 1994, the riparian area was reassessed as FAR, largely for the same reason. Grazing has since been eliminated from the Rio Nutrias riparian area.

1.2.13 Rio Quemado

Rio Quemado riparian area is located at 6,600 feet MSL and extends over 3 miles (32.8 acres) in the southeastern part of Rio Arriba County and the northeastern part of Santa Fe County (Figure 1.13). Rio Quemado is a small perennial stream. The riparian area, administered by the BLM, consists of two small areas separated by a pair of small rural communities. Vegetation in the area was classified as pinyon-juniper woodland 21 (Kuchler 1985).

Evidence of light OHV use was found, consistent with the close proximity of the two rural communities located nearby. Grazing activity also was judged to be light, with the riparian area composing part of Allotment Nos. 00637, 00532, and 00535. No mining has occurred in the area. The potential for oil and gas development was deemed low. In June 1989, the BLM determined that the Rio Quemado riparian area was in fair condition and did not cite any particularly serious problems. In July 1994, the area was reassessed as PFC, with a note that riparian vegetation was well-established.

1.2.14 Rio San Antonio

The Rio San Antonio riparian area (several separate segments) is located at 8,100 feet MSL and extends over 13.2 miles (120.1 acres) in the northeastern part of Rio Arriba County (Figure 1.12). The Rio San Antonio is a perennial stream flowing through a deep gorge. The riparian area itself and the surrounding land are administered by the BLM. The river and riparian area lie within the San Antonio Gorge area of critical environmental concern (ACEC), while the surrounding uplands are included in a wilderness study area. Vegetation in the area was classified as pine-Douglas fir 17 (Kuchler

1985), with associated pinyon-juniper woodland. The soil was sandy.

BLM staff found no evidence of OHV use, most likely because the riparian area lies in the relatively inaccessible bottom of a gorge. In 1989, grazing activity was judged to be moderate. Although most grazing occurred on the top of the gorge, a lack of water there had caused cattle to make trails into the gorge to gain access to the water at its bottom. In 1995, a series of water gaps was installed to reduce livestock access. No mining has occurred in the area. Other problems in the Rio San Antonio include pollution from agricultural runoff, silviculture, and recreation (State of New Mexico n.d.). In June 1989, the BLM determined that the Rio San Antonio riparian area was in fair condition and cited problems with livestock control. In July 1994, the area was recategorized as FAR; the main problem cited was dewatering of the stream within the watershed.

1.2.15 Rio de Truchas

Rio de Truchas riparian area is located at 6,600 feet MSL and extends over 7.5 miles (1,033 acres) in the southeastern part of Rio Arriba County (Figure 1.14). The source of water for this riparian area is Rio de Truchas, an intermittent stream that serves as a primary drainage for the Sangre de Cristo range during snow and rain runoff. A perennial spring serves as a tributary and maintains the riparian quality of the area. The riparian area itself and associated land are administered by the BLM. Vegetation in the area was classified as pinyon-juniper woodland 21 (Kuchler 1985), augmented by a large quantity of sage, an understory primarily of grama grasses (bluegrama, Kentucky bluegrass, and smooth brome), forbs, and shrubs, as well as scattered rubber rabbitbrush, cottonwood, small willows, Gambel oak, skunkbrush, snakeweed, milkseed, snowy aster, cholla, prickly pear, and horsetail. Riparian vegetation has been discontinuous, characterized by patches of riparian communities that open up to areas of raw gravel bar, although recovery has reached a point where there are no gravel stretches without at least a few young cottonwood or willow trees. Wildlife includes deer, turkey, and a large number of neotropical migratory birds. The Rio de Truchas riparian area supports potential short-term habitat for the southwestern willow flycatcher.

Evidence of moderate OHV use was found; the lower 0.5 to 0.75 mile of the canyon was particularly disturbed (the upper canyon was in much better condition). Livestock were observed in the canyon; grazing use was assessed as moderate as well. The riparian area composes part of Allotment No. 00522. Grazing occurs only during the winter, and the sole rancher who holds a grazing permit has signed an allotment management plan that stipulates the removal of livestock when use levels reach 50% of herbaceous species or 10% of woody species (cottonwood and willow). The lower Rio de Truchas, below the spring, has been used for mineral material sales (mostly state and public sand sales) and has been heavily disturbed. The potential for oil and gas development is low. In September 1988, the BLM classified the condition of the Rio de Truchas riparian area as fair. In July 1994, the riparian area was reclassified as FAR, due both to the sand and gravel mining mentioned above and upstream diversion of water for irrigation. The riparian area has subsequently been closed to sand and gravel removal.

1.2.16 Santa Cruz Lake

Santa Cruz Lake riparian area is located at 6,300 feet MSL and extends over 2.5 miles of shoreline (135.0 acres) in north-central Santa Fe County (Figure 1.13). Santa Cruz Lake is a reservoir formed by damming the perennial

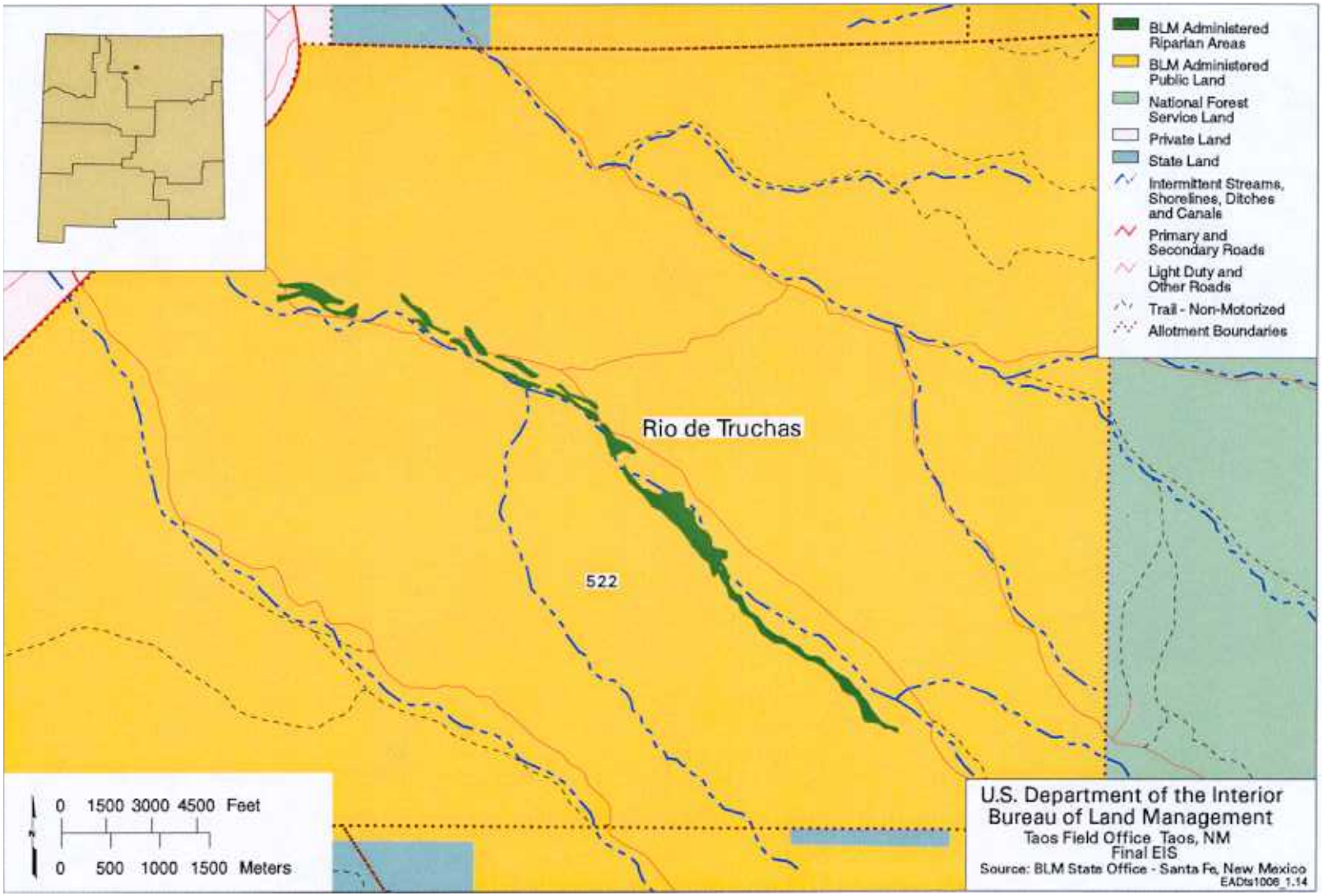

FIGURE 1.14 Rio de Truchas Riparian Area

Santa Cruz River. The main function of the reservoir is to store water for irrigation, although it also provides a source of recreation. The riparian area itself and associated land are administered by the BLM. Vegetation in the area was classified as pinyon-juniper woodland 21 (Kuchler 1985), with associated cottonwood, Apache plume, and assorted shrubs varying along the lakeshore. Wildlife included beaver, rainbow trout, German brown trout, and suckers.

Santa Cruz Lake serves as a major recreational area in Santa Fe County. Pedestrian traffic related to fishing has resulted in soil compaction and erosion along the shoreline. No evidence of grazing was observed, although on occasion a stray cow enters the area. The riparian area is part of Allotment No. 00535. No mining has occurred in the area. The potential for oil and gas development was deemed low. In June 1988, the BLM classified the Santa Cruz Lake riparian area as being in poor condition, due in large part to OHV-related damage. However, controls on OHV use have subsequently been successfully implemented. In July 1994, the riparian area was rated as U. Because the Santa Cruz Lake serves as a reservoir used primarily for irrigation, many of the conventional evaluation criteria that the BLM uses to assess riparian areas do not apply.

1.2.17 Santa Cruz River, Above Lake

The Santa Cruz River, Above Lake riparian area is located at 6,500 feet MSL and extends over 1.0 mile (9.0 acres) in north-central Santa Fe County (Figure 1.13). The source of water for this riparian area is the Santa Cruz River, a perennial stream flowing through the La Caja Canyon and feeding into Santa Cruz Lake. The riparian area itself and associated land are administered by the BLM. Vegetation in the area was classified as primarily pinyon-juniper woodland 21 (Kuchler 1985), augmented with cottonwood, coyote willow, Ponderosa pine, mountain alder, Apache plume, sand dropseed, Kentucky bluegrass, sideoats, rubber rabbitbrush, clematis, winter fat, mints, cacti, and horsetail. Two waterfalls occur on the river and have been identified as dam-and-log type. The stream bed is generally sand, large gravel, and cobbles. The Santa Cruz River, Above Lake riparian area supports potential long-term habitat for the southwestern willow flycatcher.

No evidence of OHV use was found, most likely because the river flows through a steep-sided canyon. Evidence of light grazing was found. The riparian area is in Allotment No. 00535. Little disturbance of the riparian area was attributable to grazing when it was evaluated in the late 1980s, and grazing was excluded in 1998. No mining has occurred in the area. The potential for oil and gas development was deemed low. Other potential problems include pollution due to agricultural runoff and recreation (State of New Mexico n.d.). In July 1989, the BLM classified the Santa Cruz River, Above Lake riparian area as fair. In July 1994, the riparian area was recategorized as PFC.

1.2.18 Santa Cruz River, Below Dam

The Santa Cruz River, Below Dam riparian area is located at 6,200 feet MSL and extends over 1.0 mile (27.3 acres) in north-central Santa Fe County (Figure 1.13). The source of water for this riparian area is the stretch of Santa Cruz River flowing out of Santa Cruz Lake below the dam that forms that reservoir. The riparian area itself and associated land are administered by the BLM. Vegetation in the area was classified primarily as pinyon-juniper 21 (Kuchler 1985), augmented with cottonwood, Apache plume, willow, rubber rabbitbrush, poison ivy, Chinese elm, sand dropseed, woolly mullein, prickly pear, cholla, snakeweed, mustard, horsetail, clematis, and hairy golden aster.

BLM staff found evidence of moderate OHV use, primarily by way of a single access road that opens the entire area to such activity. Evidence of moderate grazing also was noted. Livestock stray into the area from Allotment No. 00534. No mining has occurred in the area, although some large rocks had been removed from the stream bed for construction purposes. The potential for oil and gas development was deemed low. Other potential problems include pollution from agriculture (State of New Mexico n.d.). In July 1988, the BLM staff judged the Santa Cruz River, Below Dam riparian area to be in poor condition primarily because of stream bank erosion and the lack of stream bank vegetation. In July 1994, the area was classified as FAR, largely due to heavy human impact.

1.2.19 Santa Fe River

The Santa Fe River riparian area (two separate segments) is located at 5,720 feet MSL and extends over 6.0 miles (32.7 acres) in west-central Santa Fe County (Figure 1.15). The Santa Fe River, the source of water for this riparian area, is a perennial stream. The riparian area itself and associated land are administered by the BLM. The riparian area is included in the La Cienega ACEC, which was designated in 1992 (BLM 1995). Vegetation in the area was classified as a combination of grama-galleta steppe 47 and pinyon-juniper woodland 21 (Kuchler 1985). The shore of the stream was observed to be rocky and stable. The Santa Fe River riparian area supports potential long-term habitat for the southwestern willow flycatcher.

BLM staff found no evidence of OHV use. Indications of moderate grazing were found, primarily in the form of cattle grazing at the time of observation. The riparian area is part of Allotment Nos. 00545 and 00546. No mining had occurred in the area at the time of assessment in the late 1980s. The potential for oil and gas development was deemed low. Other potential problems include pollution from agricultural runoff (State of New Mexico n.d.). In August 1989, the BLM classified the Santa Fe River riparian area as fair. In July 1994, the area was classified as NF. The BLM noted that the uplands lie in the city of Santa Fe, and that most of the water flow is effluent from the sewage treatment plant (augmented by spring seeps in the Cieneguilla Canyon and water from Cieneguilla Creek).

The La Cienega Mesa special management area was expanded in 1992 and was designated as an ACEC to incorporate areas with high-value cultural resources. However, the BLM also noted that the abundant water (although largely effluent) attracts a great variety of wildlife, especially avian species. The Santa Fe River riparian area is a major component of the La Cienega ACEC (BLM 1995). Much of the interest in this area relates to its potential to support the reestablishment of riparian vegetation and historic wetland habitats. One of the most important steps in this reestablishment is to increase consolidation of the riparian areas through the acquisition of key tracts of private land interspersed with public land. Additional actions include the reclamation of cinder pits, developing and implementing grazing management within the Tetillitas allotment, and implementing riparian restoration (removal of certain plant species and planting of others).

1.3 RELEVANT CONSTRAINTS

Various laws, policies, program guidance, and management plans that apply to preparation of this HMP include, but are not limited to, the following:

- Executive Order 11988 - Floodplain Management (May 24, 1977);
- Executive Order 11990 - Protection of Wetlands (May 24, 1977);

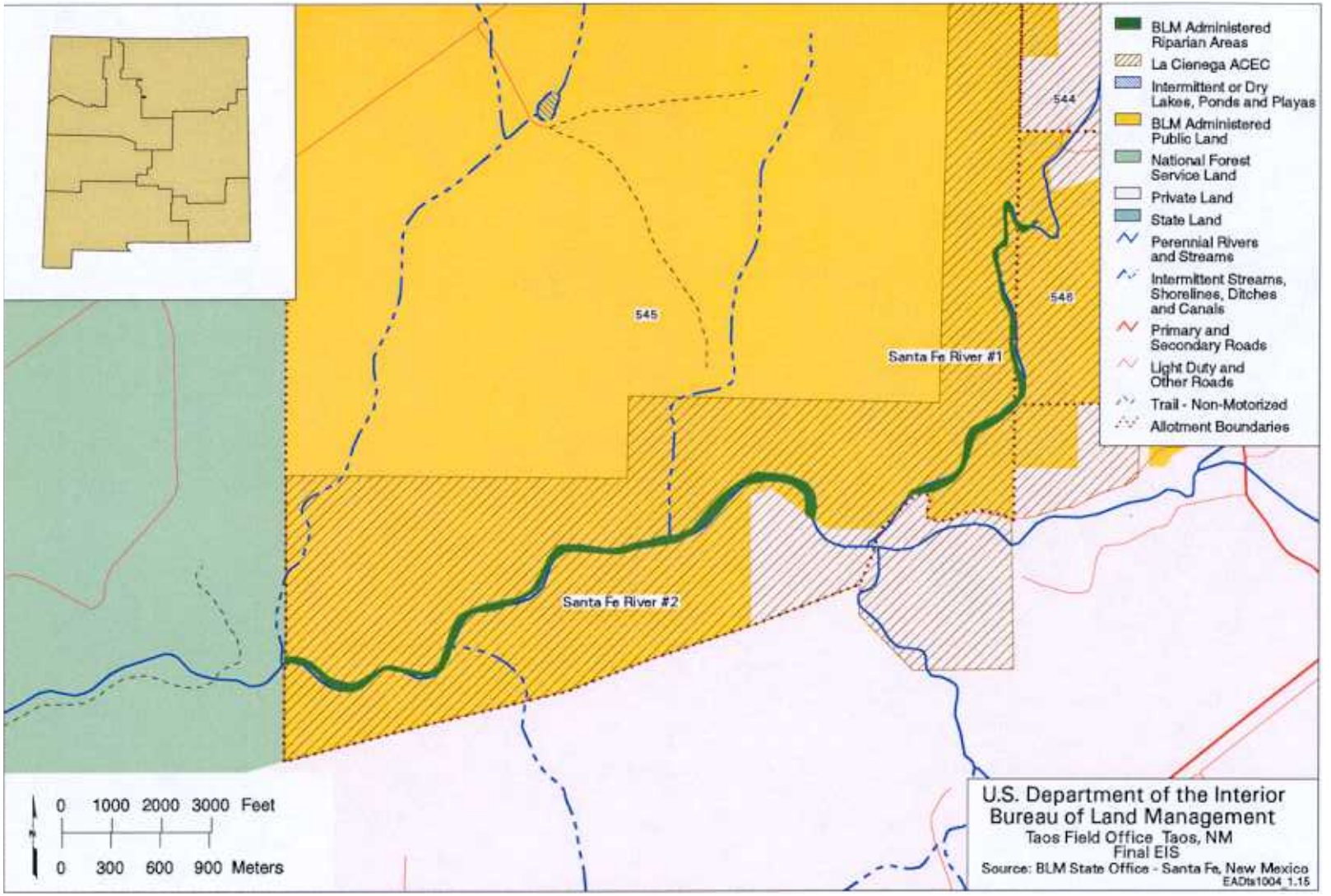

FIGURE 1.15 Santa Fe River Riparian Areas

- The Taylor Grazing Act of 1934, which directs the Secretary of the Interior to stop injury to the public lands by preventing overgrazing and soil deterioration;

- The Federal Land Policy and Management Act of 1976, which requires that the public lands be managed in a manner that will protect the quality of ecological, environmental, and water resources, and that, where appropriate, will preserve and protect certain public lands in their natural condition to provide food and habitat for fish and wildlife;

- The Public Rangelands Improvement Act of 1978, which directs improvement of rangeland conditions;

- The Clean Water Act, which has as its objectives the restoration and maintenance of the chemical, physical, and biological integrity of the nation's water at a level of quality that protects fish, shellfish, wildlife, and recreational use;

- The Endangered Species Act (as amended), which specifies consultation with the U.S. Fish and Wildlife Service (USFWS) regarding actions that could affect federally listed threatened or endangered species of plants and animals;

- Department of the Interior and BLM policy to maintain, restore, or improve riparian-wetland ecosystems to achieve a healthy and PFC that assures biological diversity, productivity, and sustainability;

- *BLM Manual Transmittal Sheet: 1737 – Riparian-Wetland Management* (BLM 1992b);

- BLM Technical References (TRs) on Riparian Area Management 1737-3 and 1737-5 through 1737-15 (BLM 1989a; BLM 1990; 1992a,c; 1993a,b; 1994a,b; 1996a,b; 1997a; 1998a);

- The *Taos Resource Management Plan* (BLM 1988), including all relevant decisions affecting actions and developments in riparian-wetland areas; and

- The Taos Resource Area *Southwestern Willow Flycatcher Management Plan* (BLM 1998b), which relates specifically to the management of habitat, including riparian-wetland areas, for that endangered species.

1.4 SIKES ACT AUTHORITY

This HMP has been written to meet the requirements of the Sikes Act (Public Law 93-452) and will be implemented under its authority. This plan has been developed to meet the policies and guidance outlined in the Memorandum of Understanding (MOU) between the BLM and the New Mexico Department of Game and Fish (NMDG&F) (MOU-NM-232 [1990]) and the Cooperative Agreement among the U.S. Department of Agriculture Forest Service, the NMDG&F, and the BLM on implementation of the Sikes Act (Agreement No. 14226910A980006 [1998]).

2 LAND STATUS AND ADMINISTRATION

2.1 LAND STATUS

The distribution of BLM-administered riparian areas and the status of land jurisdiction throughout the Taos Field Office are shown in Figures 1.2 and 1.4, respectively. Individual riparian, wetland, and spring-seep areas under BLM jurisdiction are shown in context with lands under the jurisdiction of others in Figures 1.5 through 1.15.

2.2 ADMINISTRATION

Information related to BLM-administered riparian areas in the Taos Field Office is provided in Table 2.1.

TABLE 2.1 Taos Field Office Riparian Areas

Riparian Area	Length [miles] (Area [acres])	Type	Current Use	Threatened and Endangered Species[a]	Condition[b] (Date)	General Management Guidelines[c]
Canadian River	1.0 (36.3)	Perennial stream	OHV; grazing	ARS, BE	NF (1994)	1
Carrizo Creek	0.5 (16.0)	Perennial stream	OHV; grazing; trespass grazing	ARS, BE	NF (1994)	1
Chico Creek	1.0 (1.5)	Perennial stream	OHV; grazing	None	Fair (1989)	1
Cow Creek	1.0 (1.8)	Perennial stream	Grazing	None	FAR (1994)	1
Lobo Canyon	0.8 (1.4)	Intermittent springs	No evidence of use	PLT SWF	FAR (1997)	1, 2
Mora River	1.5 (36.3)	Perennial stream	Grazing	ARS, BE	NF (1994)	1
Manueles Creek	0.5 (5.5)	Perennial stream	No evidence of use	None	PFC (1994)	1
Ojo Caliente Riparian Area Demonstration	1.25 (325.0)	Perennial stream	OHV; No grazing allowed	PLT SWF	Poor (1988)	1, 2
Ojo Caliente Upper	1.3 (23.2)	Perennial stream	-	PLT SWF	Unknown	1, 2
Rio Cebolla	2.3 (8.3)	Perennial stream	OHV; grazing	PLT SWF	PFC (1994)	1, 2
Rio de los Pinos	5.8 (77.3)	Perennial stream	OHV; fishing; grazing	PLT SWF	FAR (1994)	1, 2
Rio Medio	2.75 (36.5)	Perennial stream	Grazing	None	FAR (1994)	1
Rio Nutrias	2.5 (12.5)	Perennial stream	No evidence of use	None	FAR (1994)	1
Rio Quemado	3.0 (32.8)	Perennial stream	OHV; grazing	None	PFC (1994)	1
Rio San Antonio	13.2 (120.1)	Perennial stream	Grazing	None	FAR (1994)	1
Rio de Truchas	7.5 (1033.0)	Intermittent stream; perennial spring	OHV; grazing; sand and gravel mining	PST SWF	FAR (1994)	1, 2
Santa Cruz Lake	1.0 (135.0)	Reservoir	OHV; no grazing; recreation	None	Unknown (1994)	1, 3
Santa Cruz River, Above Lake	1.0 (9.0)	Perennial stream	Grazing; hiking; fishing	PLT SWF	PFC (1994)	1, 2, 3
Santa Cruz River, Below Dam	1.0 (27.3)	Perennial stream	OHV; grazing	None	FAR (1994)	1, 3
Santa Fe River	6.0 (32.7)	Perennial stream	Trespass grazing	PLT SWF	NF (1994)	1, 2

[a] ARS = habitat for Arkansas River shiner; BE = habitat for bald eagle; PLT SWF = potential long-term southwestern willow flycatcher habitat; PST SWF = potential short-term southwestern willow flycatcher habitat.

[b] FAR = functional – at risk; NF = nonfunctional; PFC = proper functioning condition.

[c] 1 = *Taos Resource Management Plan* (BLM 1988); 2 = *Southwestern Willow Flycatcher Management Plan* (BLM 1998b); 3 = *Santa Cruz Lake Recreation Area Management Plan* (BLM 1989b).

Source: BLM files.

3 HABITAT MANAGEMENT

3.1 APPROACH

This HMP combines the structural components of BLM Manual 6780 (BLM 1981) with Alternative 2 (Adaptive Management) of the Draft EIS (DEIS) (BLM 1999) to develop the management approach, planned actions, evaluation and monitoring, and HMP progress reporting contained in BLM Manual 6780 (BLM 1981). Specific information related to individual riparian areas from BLM files, as well as from comments received on the analysis in the DEIS, were also used. The BLM Riparian Area Management TR Series 1737 was used, where appropriate, to provide technical guidance on the field activities required to implement the HMP. For example, TR 1737-14 (*Grazing Management for Riparian-Wetland Areas* [BLM 1997a]) provides specific information on the probable response of brushy species regrowth potential to different grazing strategies.

By using the adaptive management approach and specific field activity guidance, this HMP provides a road map for achieving specific desired future conditions for all riparian habitats that occur within the Taos Field Office. However, like all road maps, the HMP allows field office staff to respond to changes as new information is developed and there is a need to adjust to new conditions (management directions).

An adaptive management framework represents a proactive approach to planning and implementing strategies for restoring and protecting riparian habitats on the basis of a set of activities intended to achieve measurable improvement of riparian habitat and function. The management actions will be implemented irrespective of other public land administrative actions or functions. Riparian management will receive staffing and budget resources independent of other Taos Field Office business requirements or work tasks. This HMP is based on the concept that riparian habitats are critical elements in the landscape and that specific management actions are necessary to enable them to function at their full potential. BLM policy, direction, and guidance are specifically formulated to accomplish this objective and prescribe a set of comprehensive practices for riparian-wetland management. Adaptive management seeks to evaluate the overall public values of riparian areas; to take measures necessary to maintain or improve riparian areas to their desired condition (e.g., PFC); and to ensure that activities conducted are consistent with the protection of riparian resource values.

Implementation of adaptive management practices will involve the following basic procedures:

Step 1: Survey and analyze riparian conditions;

Step 2: Use survey results to describe a desired future condition and to identify appropriate management actions;

Step 3: Implement management actions;

Step 4: Monitor the success of the management actions; and

Step 5: Modify the management actions, if necessary, on the basis of the monitoring results.

The ordered sequence of these procedures describes an adaptive management approach that provides a means of changing management activities when monitoring data show that current actions are no longer required or when current actions are not achieving a desired restoration or enhancement goal as outlined in Step 2. A guiding principle is that all

information is collected and analyzed to judge success in achieving (1) the endpoints associated with PFC and (2) a desired vegetation composition and structure. When adaptive management practices are being implemented, the development of management actions is a decision outcome derived from the results of baseline riparian area surveys and analyses.

The specific steps for implementing Alternative 2, Adaptive Management, are derived from BLM TR Series 1737.

3.2 MANAGEMENT OBJECTIVES

Because the HMP represents a dynamic process of data collection, assessment of riparian conditions based on data analysis, and continuing evaluation of the ability to meet defined goals, management objectives will be achieved from the completion of the following two tasks:

Survey and Analyze Riparian Conditions: Baseline data collection and analysis will follow the guidelines of TR 1737-11 (*Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas* [BLM 1994a]) and TR 737-15 (*A User's Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas* [BLM 1998a]). The Taos Field Office will develop an implementation plan (including schedule, budget, and quality control measures) and conduct all field surveys necessary for determining the current condition of each designated riparian area. The outcome of this action will be a written determination (available to the public) of the status of riparian habitat conditions, including natural ecological systems and human-caused conditions. As a part of the summary and analysis of riparian conditions, the Taos Field Office will use the findings of previous riparian surveys and data collection efforts.

Define a Desired Future Condition and Required Management Actions: Results of the survey and analysis of riparian habitats conducted by the Taos Field Office will be used to define and develop the desired future condition of individual riparian segments administered by the BLM. The desired future condition that is defined will take into account (1) potential vegetation communities that could develop at the site; (2) erosion and deposition conditions; (3) current activities that may be detrimental to achieving PFC; (4) the ability of the area to develop and support threatened and endangered species habitat; (5) the characteristics of the surrounding land use; (6) potential use conditions that could be accommodated at the site; and (7) management actions needed to restore and/or protect the long-term ecological condition of the riparian segments, wetlands, or spring seeps. A list of measurable endpoints that can be monitored to determine the status of the riparian ecosystem over time will be included in the definition of the desired future condition. Finally, a set of management goals will be developed to assist in determining the required budget and staffing needs to implement the riparian HMP.

3.3 PLANNED ACTIONS

The Taos Field Office will continue to implement current management activities that are consistent with the requirements identified under Steps 1 and 2 (Section 3.1). Table 3.1 lists the types of management activities that could be implemented by the Taos Field Office,

TABLE 3.1 Riparian Area Management Practices

Practice	Objective	Comment
Fencing	Isolate degraded habitats.	Consider big-game migration, public access, beaver activity, falling trees, and vehicles.
Prescribed burns	Modify vegetation communities.	Primarily for upland areas; avoid areas of special concerns (endangered species).
Forestry practices	Improve vegetation communities.	Cover or canopy manipulation of coniferous stands, woody debris, or slash management.
Vegetation plantings	Reestablish native communities.	Cuttings work well for woody vegetation; make sure end is below water table; transplant in enhanced soil; seed in fall and spring; rake after application.
Opportunities from mineral activities	Mitigate mineral exploitation.	Reclamation to utilize spoil runoff or drainage; riparian habitat development in association with evaporation ponds; water spreaders to collect increased runoff from road construction.
Structures	Control erosion.	Riprapping banks, gradient restoration, water energy-transfer structures, gully plugs, spring developments, removal, or modification of channelization structures, etc.
Beaver complex cycling	Transform pioneer woody vegetation into riparian community.	Cycling of beaver complexes; special management to maximize vegetation regrowth rates; maximize initial construction population followed by reductions for maintenance levels.
Bank stabilization	Accelerate soil and water conservation efforts.	Anchoring green trees (or discarded Christmas trees) into banks; log structures (10–12 in. diameter) at base of bank; gabions (must exceed size of net) or riprap (24 in.).
Recreation planning	Protect, manage, and improve habitats.	Maintain a presence; retain vegetation; locate sites outside of riparian areas; prohibit vehicles from stream access; plant dense vegetation to screen and reduce use of sensitive areas; install signs; designate sites within riparian areas.
Road relocation, construction, and maintenance	Protect, manage, and improve habitats.	Locate outside of riparian area; prohibit vehicles from leaving roads; install signs; minimize impact to streambank and vegetation; revegetate disturbed areas; design and maintain culverts to allow fish passage and free debris flow; haul waste material away.
New well pad construction	Protect, manage, and improve habitats.	Locate outside of riparian area and 100-year floodplain for ephemeral washes.
Public education	Provide information to public land users on protection methods.	Develop environmental education and interpretative displays designed to modify visitor or user behavior in or adjacent to riparian areas.

Source: BLM (1992a).

depending on the findings developed under the baseline data collection and written baseline determinations. The activities cited include a summary of management techniques outlined in BLM TR 1737-6 (*Management Techniques in Riparian Areas* [BLM 1992a]).

Management activities will also include specific grazing management protocols that will be established for each riparian area on the basis of guidance provided in BLM TR 1737-14 (*Grazing Management for Riparian-Wetland Areas* [BLM 1997a]). The protocols will be implemented for all allotments that include riparian habitat. The protocols will include one or more of the following grazing treatments:

- *Riparian Pasture*: Establish a combination of upland and riparian vegetation that will be managed as one unit within a larger allotment.
- *Winter Grazing*: Allow limited grazing in riparian areas when the vegetation is dormant.
- *Long-Term Rest*: Exclude grazing from riparian areas for an appropriate period on the basis of monitoring and evaluation results. During the period of exclusion, collect vegetation and erosion data to determine if riparian pastures or winter grazing may be established. Additional monitoring during the period of exclusion will be conducted to determine the status of other riparian endpoints such as endangered species habitat or soil erosion conditions.
- *Total Exclosure*: Exclude livestock use permanently.

3.4 EVALUATION AND MONITORING

The Taos Field Office will develop a written monitoring plan as part of the HMP. The monitoring plan will include schedule, data collection protocols, measurement endpoints, and management outcomes for all riparian habitats. The monitoring plan will use guidance material in BLM TRs 1737-7 through 1737-9 (BLM 1992c; 1993a,b) and 1737-11 through 1737-15 (BLM 1994a; 1996a,b; 1997a; 1998a). The monitoring results will be used to determine the success of the management actions and as a basis for suggesting any necessary changes. The monitoring plan will include the following as needed:

- Desired condition of riparian vegetation, with an estimate of vegetation structure and species composition;
- Erosion and deposition conditions within the riparian area;
- Status of threatened and endangered species;
- Threats and opportunities from surrounding land uses;
- Status of domestic livestock grazing;
- Status of management actions taken to date;
- Wildlife use of the riparian area;
- Recreational use of the riparian area;

- Success of public education tools to effect changes in human use of riparian areas; and

- Estimated time remaining to meet stated protection and enhancement goals for the riparian habitat developed under Steps 1 and 2 (Section 3.1).

Implementation of an adaptive management approach requires a commitment to modify riparian habitat management activities if monitoring shows that the proposed desired future condition outlined in Step 2 (Section 3.1) will not be achieved under current management activities. Provision for modifying management activities builds positive feedback capabilities into the HMP. In addition, modifications potentially allow conditions to change as (1) riparian habitat conditions improve (e.g., achieving PFC) and (2) vegetation conditions indicate that plant community processes have become stable, pointing to positive future conditions (e.g., succession, elimination of nonnative species, and reproduction of desired native species).

3.5 IMPLEMENTATION

Current and planned management of the riparian areas in the Taos Field Office can be described in terms of the adaptive management tasks. For example, site visits by inter-disciplinary teams of trained specialists to assess the functioning condition of riparian areas applies to adaptive management Step 1 (Section 3.1). Defining PFC as the desired future condition of an individual riparian area addresses adaptive management Step 2 (Section 3.1). Additional actions may be required to implement adaptive management for specific riparian areas. Table 3.2 describes current management actions and their relationship to the adaptive management tasks, as well as additional planned actions for each of the riparian areas.

The Taos Field Office will implement the HMP model by systematically applying the five adaptive management steps to riparian areas located on public lands administered by the BLM. Within the framework of the HMP model, management actions will be based on the site-specific characteristics of each individual riparian area. Since each riparian area is composed of a unique set of hydrological, ecological, soil and human use characteristics (see Tables 2.1 and 3.2), the adaptive management approach will allow management flexibility in achieving PFC and restoration and protection of threatened and endangered species habitat. Because the HMP utilizes an adaptive management framework, the site-specific ecosystem dynamics that control the natural functions of each riparian area are continually monitored to ensure that stewardship goals will be achieved. Planned management actions can be modified in order to maintain and/or restore the ecological and hydrological properties of riparian areas. However, there are some riparian areas where this may not be possible (e.g., riparian areas with highly saline soils). A routine monitoring program is a component of the planned actions and will provide Taos Field Office staff with the data required to make future management decisions.

Table 3.2 shows the set of planned management and monitoring actions the Taos Field Office will undertake for each riparian area. Past and ongoing management actions, in combination with the most recent survey data for each riparian area, provide the context for the planned management actions. In addition, where riparian areas contain current or potential habitat conditions for threatened and endangered species, planned management actions have been designed to protect and enhance habitat for these species, especially as these actions relate to establishing vegetation

TABLE 3.2 Current Management Actions and Adaptative Management Tasks for the Riparian Areas Administered by the Taos Field Office[a]

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks				
		Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Canadian River	No tasks or projects have been completed, domestic livestock grazing, evidence of OHV use.	PFC rating: NF (1994)	Develop domestic livestock grazing agreement that is protective of the riparian area. Collect data on the current condition of the riparian area. Exclude OHV use in riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Carrizo Creek	No tasks or projects have been completed, domestic livestock grazing, evidence of OHV use.	PFC rating: NF (1994)	Develop domestic livestock grazing agreement that is protective of the riparian area. Collect data on the current condition of the riparian area. Exclude OHV use in riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Chico Creek	No tasks or projects have been completed, domestic livestock grazing, evidence of OHV use.	PFC rating: Fair (1989) NF (1994)	Collect data on the current condition of the riparian area. Develop domestic livestock grazing agreement that is protective of the riparian area. Exclude OHV use in riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

TABLE 3.2 (Cont.)

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks				
		Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Cow Creek	No tasks or projects have been completed, domestic livestock grazing.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area. Develop domestic livestock grazing plan that is protective of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Lobo Canyon	Fenced in 1998, domestic livestock grazing not allowed.	PFC rating: FAR (1997)	Continue to exclude domestic livestock grazing. Collect data on the current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Maintain fences and exclude domestic livestock grazing.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Mora River	No tasks or projects have been completed, domestic livestock grazing.	PFC rating: NF (1994)	Collect data on the current condition of the riparian area. Develop domestic livestock grazing plan that is protective of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Manueles Creek	No tasks or projects have been completed.	PFC rating: PFC (1994)	Enhance recreational opportunities. Monitor for use by domestic livestock grazing. Collect data on the current condition of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

TABLE 3.2 (Cont.)

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks: Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Ojo Caliente (Demonstration Area)	Fenced in 1987, riparian area demonstration project, domestic livestock grazing not allowed.	PFC rating: Poor (1988) FAR (1994)	Monitor riparian pastures No. 6 (North) and No. 7 (South) to determine recovery of riparian habitat. Continue to exclude domestic livestock. Collect data on current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Reestablish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Ojo Caliente Upper	No tasks or projects have been completed.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Ojo Caliente Lower	No tasks or projects have been completed.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Develop and implement a grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Rio Cebolla	Fenced on east side of riparian area, domestic livestock grazing excluded, evidence of OHV use.	PFC rating: PFC (1994)	Collect data on the current condition of the riparian area. Exclude OHV use in riparian area. Manage for recovery of SWF habitat.	Notify OHV users of riparian use restrictions.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

TABLE 3.2 (Cont.)

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks: Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Rio de los Pinos	No tasks or projects have been completed, evidence of OHV use, domestic livestock grazing excluded, recreational fishing.	PFC rating: FAR (1994)	Continue to collect data on the current condition of the riparian area. Exclude OHV use in riparian area. Evaluate for recreational opportunities. Manage for recovery of SWF habitat. Evaluate land ownership.	Implement condition and trend monitoring to re-evaluate PFC. Develop grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions. Evaluate recreational opportunities. Identify BLM boundaries.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Rio Medio	No tasks or projects have been completed, domestic livestock grazing.	PFC rating: FAR (1994)	Develop domestic livestock grazing plan that is protective of the riparian area. Collect data on the current condition of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop grazing agreement that explicitly protects riparian habitat by 2001.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Rio Nutrias	No tasks or projects have been completed, grazing prohibited.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Continue to exclude domestic livestock grazing.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Rio Quemado	No tasks or projects have been completed, evidence of OHV use, domestic livestock grazing.	PFC rating: PFC (1994)	Collect data on the current condition of the riparian area. Determine extent of domestic livestock grazing. Exclude OHV use in riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

TABLE 3.2 (Cont.)

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks: Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Rio San Antonio	Water gaps installed in 1995, domestic livestock grazing excluded.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area.	Implement condition and trend monitoring to re-evaluate PFC.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Rio de Truchas	Dormant season grazing only, closed to sand and gravel mining in 1994, evidence of OHV use.	PFC rating: FAR (1994)	Monitor the effects of domestic livestock grazing on SWF habitat. Collect data on current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Monitor grazing activity to ensure that riparian protection is highest priority and that SWF habitat is not compromised.	Continue to take photopoints.	Use the results of the monitoring to adjust current management, if necessary.
Santa Cruz Lake	No grazing allowed, evidence of OHV use, recreational opportunities.	PFC rating: U (1994)	Continue to exclude domestic livestock grazing, exclude OHV use in riparian area, evaluate recreational opportunities.	Implement condition and trend monitoring to re-evaluate PFC. Continue to exclude domestic livestock. Notify OHV users of riparian use restrictions. Evaluate recreational opportunities.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Santa Cruz River, Above Lake	Grazing not allowed since 1998, hiking and fishing opportunities.	PFC rating: PFC (1994)	Continue to exclude domestic livestock grazing. Collect data on the current condition of the riparian area. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC. Continue to exclude domestic livestock. Evaluate recreational opportunities.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

TABLE 3.2 (Cont.)

Riparian Areas	Current Management Practices and Activities	Adaptive Management Tasks				
		Survey and Analyze Riparian Areas	Define Required Management Actions	Implement Management Actions	Monitor Management Actions	Modify Management Actions, if Necessary
Santa Cruz River, Below Dam	No tasks or projects have been completed (project plan for 2000), evidence of OHV use, domestic livestock grazing.	PFC rating: FAR (1994)	Collect data on the current condition of the riparian area. Exclude livestock grazing. Exclude OHV use in riparian area.	Implement condition and trend monitoring to re-evaluate PFC. Develop grazing agreement that explicitly protects riparian habitat by 2001. Notify OHV users of riparian use restrictions. Evaluate recreational opportunities.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.
Santa Fe River	Fencing to exclude trespass domestic livestock grazing. Exclusion fences completed January 2000.	PFC rating: NF (1994)	Domestic livestock grazing will be excluded from the riparian area. Collect data until recovery occurs. Thereafter, dormant season grazing may occur with limitations on levels of use. Manage for recovery of SWF habitat.	Implement condition and trend monitoring to re-evaluate PFC.	Establish photopoint.	Use the results of the monitoring to adjust current management, if necessary.

[a] FAR = Functional-at risk; NF = nonfunctional; OHV = off-highway vehicle; PFC = proper functioning condition; SWF = southwestern willow flycatcher; U = unknown.

communities that could support southwestern willow flycatchers. Indeed, a key objective of the planned management actions is the need to restore and maintain riparian vegetation conditions.

The tasks and activities described in Table 3.2 do not require the use of new or enhanced methodologies to determine the current condition of riparian habitats, estimate future potential condition, develop required management practices, or conduct monitoring activities. Rather, implementing the HMP involves the use of well-documented procedures (see Section 3.1) set within the context of an adaptive management strategy. For example, site visits by interdisciplinary teams of trained specialists from the Taos Field Office will assess the functioning condition of individual riparian areas in order to implement adaptive management Step 1 (Survey and Analyze Riparian Conditions). The desired future condition and restoration of threatened and endangered species habitat are addressed under adaptive management Step 2 (Define a Desired Future Condition and Required Management Actions). In addition, a monitoring plan will be developed to determine the success of the management actions (Section 3.4). Because riparian conditions are a function of variable climatic, meteorological, and ecological conditions and ongoing management actions, monitoring results could show a need for additional or modified management actions necessary to maintain or meet the desired future condition for each riparian area. The HMP model allows the Taos Field Office to incorporate adjustments in riparian management actions to respond to new or changing conditions in each riparian area (Section 3.4).

3.6 PROGRESS REPORTING

Adaptive management includes built-in features for evaluating and monitoring the progress and success of implemented management practices and for modifying them as necessary to ensure accomplishment of desired results. BLM Form 6780-2, Habitat Management Plan Progress Report (Figure 3.1) will be used to document the management actions prescribed, implemented, and evaluated for each riparian area.

Illustration 4
Form 6780-2
(.31If3)

6780 - HABITAT MANAGEMENT PLANS

Habitat Management Plan Progress Report

Form 6780-2
(July 1981)
(Formerly 6620-3)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HABITAT MANAGEMENT PLAN PROGRESS REPORT

OBJECTIVES	DATE COMPLETED	PLANNED ACTIONS	DATE COMPLETED	EVALUATION MONITORING	DATE COMPLETED

INSTRUCTIONS

1. List specific HMP objectives as developed from RMP/MFP planning documents or as otherwise approved.
2. List specific planned actions to be initiated to meet each specific objective.
3. List scheduled evaluation monitoring study(s) planned to evaluate accomplishments.
4. Enter completion date for each objective, action, or evaluation/monitoring study as accomplished.

FIGURE 3.1 BLM Form 6780-2: Habitat Management Plan Progress Report (Source: adapted from BLM 1981)

4 COORDINATION WITH OTHER BLM PROGRAMS, OTHER AGENCIES AND ORGANIZATIONS, AND THE PUBLIC

Riparian and aquatic habitat program management is traditionally accomplished in BLM through coordination with other resource management programs; for example, by modifying domestic livestock grazing practices or limiting mineral development activities in or adjacent to riparian areas. Not only will that type of coordination continue, but this HMP also places special emphasis and priority on improving and protecting riparian areas by identifying management actions that may be implemented separately from other programs. These could include conducting scientific studies and analyses, manipulating vegetation composition, and installing bank stabilization facilities to accomplish specific riparian management objectives. Close coordination with other BLM programs in implementing these actions is critical to ensuring their success and maximizing their effectiveness.

This HMP was developed with the assistance of an interdisciplinary team of BLM resource program specialists to begin the necessary coordination process. It is important that this coordination within BLM continue as implementation of the HMP proceeds.

Organizations external to BLM that were consulted during preparation of this HMP include the USFWS and the NMDG&F. In addition, other organizations that were informed or contacted during preparation of this HMP included the New Mexico Congressional delegation, the Governor's Office, county government offices, tribal government offices, other state and federal agencies, state academic institutions, and several nongovernment organizations. A complete list of all organizations involved is contained in the *Draft Environmental Impact Statement for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico* (DEIS) (BLM 1999). In addition, the general public was invited to review and comment on the DEIS; the results of that involvement are documented in Volume 1 of the Final EIS (FEIS).

5 WILDLIFE ECONOMICS

The goal of riparian-wetland area management described in this HMP is to maintain, restore, improve, protect, and expand the riparian habitats in the Taos Field Office so that they are in PFC for their productivity, biological diversity, and sustainability. When riparian-wetland areas are functioning properly, they exhibit healthy characteristics that contribute positively to the sustainability of natural systems. The benefits of these contributions include the following:

- Purifying water by removing contaminants;
- Reducing the risk of flooding and associated damage;
- Reducing stream channel and stream bank erosion;
- Increasing available water and stream flow duration by holding water in stream banks and aquifers;
- Supporting a diversity of plant and wildlife species, including endangered species; and
- Maintaining habitat for healthy fish populations, including endangered species.

In its 1997 *Public Records from Public Lands* document (BLM 1997b), the BLM states that:

> While commodity-related activities on the public lands generate economic benefits, so too does the conservation of public land resources. *Money Magazine's* annual survey of the best places to live in the U.S. routinely ranks such criteria as clean water and clean air high on the list, along with proximity to lakes, mountains, and rivers. Drawn by these environmental values, many of which are associated with the public lands, companies and individuals are moving to the West.

The *DEIS for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico* (BLM 1999) analyzed three alternatives for improving and protecting the riparian habitats included in this HMP. On the basis of that analysis, the Adaptive Management Alternative was determined to be the most effective approach for realizing the benefits of riparian habitat management. Therefore, adaptive management is the basis for the riparian and aquatic habitat management strategies prescribed in this HMP.

6 PUBLIC AFFAIRS

The following actions have been or will be taken to facilitate public awareness of the Taos Field Office's Riparian and Aquatic HMP:

- Notice of Intent to prepare the Riparian and Aquatic Habitat Management EIS was published in the *Federal Register* on October 30, 1998.
- Public Scoping Meetings were held in Cuba, New Mexico, November 17, 1998, and in Taos, New Mexico, November 18, 1998.
- Copies of the scoping summary reports were mailed to everyone who expressed an interest in receiving them on February 1, 1999.
- Information about the riparian and aquatic habitat management planning process was posted at www.nm.blm.gov in March 1999.
- Copies of the *DEIS for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico* were mailed to everyone who expressed an interest in receiving them on October 8, 1999.
- A Public Hearing was held in Taos, New Mexico, November 15, 1999.
- Copies of the FEIS and the HMP were mailed by October 2000 to everyone who expressed an interest in receiving them.
- A news release was issued in October 2000 to announce completion of the Taos Field Office's Riparian and Aquatic HMP.
- The New Mexico BLM Web site regarding the status of the Riparian and Aquatic HMP was updated in October 2000.
- A Presentation Kit for use in fiscal year 2001 and beyond was prepared to describe the significance of riparian habitat and what the BLM is doing to improve and protect it in the Taos Field Office.

7 COSTS AND FUNDING

Table 3.2 identifies the steps to be taken for improving and protecting all of the identified riparian areas in the Taos Field Office. These steps are the basis for defining more specifically the work required for accomplishing the necessary improvement and protection of each area. As the work elements are defined site-specifically for projects in each riparian area, cost estimates will be developed for use in budget formulation and justification. However, that level of project specificity and detail is not included in this HMP.

8 CONCURRENCE AND RECOMMENDED APPROVAL

This Proposed Habitat Management Plan has been prepared, reviewed, and approved by the undersigned parties.

Prepared by:

6/26/2000

Bureau of Land Management
Taos Field Office

Date

Approved by:

6/26/2000

for Field Office Manager
Bureau of Land Management
Taos Field Office

Date

9 REFERENCES

BLM: See U.S. Bureau of Land Management.

Kuchler, A.W., 1985, *Potential Natural Vegetation*, U.S. Geological Survey Map No. 38077-AH-NA-07M-00, National Atlas of the United States of America, Department of the Interior, U.S. Geological Survey, Reston, Va.

State of New Mexico, n.d., *§303(d), List of Assessed Streams and River Reaches*, Santa Fe, N.M.

U.S. Bureau of Land Management, 1981, *6780 - Habitat Management Plans*, U.S. Department of the Interior, Bureau of Land Management, New Mexico State Office, Santa Fe, N.M., Dec.

U.S. Bureau of Land Management, 1986, *Environmental Assessment: Ojo Caliente Riparian Restoration in the Taos Resource Area*, Taos Resource Area, Taos, N.M.

U.S. Bureau of Land Management, 1988, *Taos Resource Management Plan,* BLM-NM-PT-88-021-4410, Taos Resource Area, Taos, N.M.

U.S. Bureau of Land Management, 1989a, *Inventory and Monitoring of Riparian Areas*, TR 1737-3, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1989b, *Santa Cruz Lake Recreation Area Management Plan,* BLM-NM-PT-89-008-4333, Taos Resource Area, Taos, N.M.

U.S. Bureau of Land Management, 1990, *Riparian and Wetland Classification Review*, TR 1737-5, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1992a, *Management Techniques in Riparian Areas,* TR 1737-6, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1992b, *Manual Transmittal Sheet: 1737 – Riparian-Wetland Area Management*, U.S. Department of the Interior, Bureau of Land Management, Dec.

U.S. Bureau of Land Management, 1992c, *Procedures for Ecological Site Inventory — with Special Reference to Riparian-Wetland Sites,* TR 1737-7, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1993a, *Greenline Riparian-Wetland Monitoring,* TR 1737-8, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1993b, *Process for Assessing Proper Functioning Condition*, TR 1737-9, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1994a, *Process for Assessing Proper Functioning Condition for Lentic Riparian-Wetland Areas,* TR 1737-11, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1994b, *The Use of Aerial Photography to Manage Riparian-Wetland Areas*, TR 1737-10, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1995, *La Cienega Area of Critical Environmental Concern Coordination, Resource Management Plan*, Albuquerque District Office, Taos Resource Area, Taos, N.M.

U.S. Bureau of Land Management, 1996a, *Riparian Area Management: Observing Physical and Biological Change through Historical Photographs*, TR 1737-13, U.S. Department of the Interior, BLM Service Center, Denver, Colo.

U.S. Bureau of Land Management, 1996b, *Using Aerial Photographs to Assess Proper Functioning Condition of Riparian-Wetland Areas,* TR 1737-12, U.S. Department of the Interior, BLM National Applied Resource Sciences Center, Denver, Colo.

U.S. Bureau of Land Management, 1997a, *Grazing Management for Riparian-Wetland Areas,* TR 1737-14, U.S. Department of the Interior, BLM National Applied Resource Sciences Center, Denver, Colo.

U.S. Bureau of Land Management, 1997b, *Public Records from Public Lands,* U.S. Department of the Interior, Bureau of Land Management, Washington, D.C.

U.S. Bureau of Land Management, 1998a, *A User's Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas*, TR 1737-15, U.S. Department of the Interior, BLM National Applied Resource Sciences Center, Denver, Colo.

U.S. Bureau of Land Management, 1998b, *Southwestern Willow Flycatcher Management Plan (Taos Resource Area),* Taos Field Office, Taos, N.M.

U.S. Bureau of Land Management, 1999, *Draft Environmental Impact Statement for Riparian and Aquatic Habitat Management in the Taos Field Office – New Mexico*, BLM/NM/PL-99-013-1040, Taos Field Office, Taos, N.M., Oct.

GLOSSARY

Allotment: An area of land designated and managed for grazing of livestock.

Allotment Management Plan (AMP): An activity plan that applies to livestock grazing on public lands, which is prepared in consultation, cooperation, and coordination with the permittee(s), lessee(s), or other involved affected interest(s).

Animal Unit Month (AUM): The amount of forage necessary to sustain one cow and one calf or their equivalent (e.g., five sheep or goats) for one month.

Area of Critical Environmental Concern (ACEC): An area established through the planning process, as provided in the Federal Land Policy and Management Act, where special management attention is required to protect and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources or other natural systems or processes; or to protect life and afford safety from natural hazards.

Big Game: Larger species of wildlife that are hunted, such as elk, deer, bighorn sheep, and pronghorn antelope.

Biota or Biotic: Living components of an ecosystem (e.g., plants and animals).

Browse: As noun: That part of the leaf, twig, fruit growth of shrubs, woody vines, and trees that is available for animal consumption. As verb: To consume browse.

Contiguous: In close proximity, neighboring, adjoining, near in succession, in actual close contact, touching at a point or along a boundary, bounded or traversed by.

Cultural Resources: Fragile and nonrenewable remains of human activity, occupation, or endeavor reflected in districts, sites, structures, buildings, objects, artifacts, ruins, work of art, architecture, and natural features important in human events.

Diversity: The relative degree of abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

Ecosystem: A complex, self-sustaining natural system that includes living and nonliving components of the environment and the circulation of matter and energy between organisms and their environment.

Endangered Species: Any species in danger of extinction throughout all or a significant portion of its range.

Environmental Assessment (EA): A concise public document prepared to provide sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact. An EA includes a brief discussion of the need for a proposal, the alternatives considered, the environmental impacts of the proposed action and alternatives, and a list of agencies and individuals consulted.

Environmental Impact Statement (EIS):. A document that is prepared to analyze the impacts of a proposed project or action on the environment and is released to the public for comment and review. An EIS must meet the requirements of the National Environmental Policy Act and the Council on Environmental Quality and the directives of the agency responsible for the proposed project or action.

Federal Land Policy and Management Act of 1976 (FLPMA): Public Law 94-579, signed by the President on October 21, 1976. It establishes

public land policy for the management of lands administered by the U.S. Bureau of Land Management (BLM). It specifies several key directions for the BLM, notably (1) management on the basis of multiple use and sustained yield; (2) preparation of land use plans to guide management actions; (3) public land management for the protection, development, and enhancement of resources; (4) public land retention in federal ownership; and (5) incorporation of public participation in reaching management decisions.

Field Office: The smallest administrative subdivision of the U.S. Bureau of Land Management (formerly called Resource Area).

Forage: All browse and herbaceous foods that are available to grazing animals.

Forb: Any herbaceous nonwoody plant that is not a grass or grasslike plant.

Habitat: A specific set of physical conditions that surround a single species, group of species, or large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Habitat Management Plan (HMP): A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Impact: The effect, influence, alteration, or imprint on the natural or human environment caused by an action.

Lentic: Standing water riparian habitats, such as lakes, ponds, or playas.

Lotic: Moving water riparian habitats, such as rivers, creeks, or springs.

Monitoring: Orderly process of collecting, analyzing, and interpreting resource data to evaluate progress toward meeting management objectives.

Multiple Use: A combination of balanced and diverse resource uses that considers long-term needs or renewable and nonrenewable resources, including recreation, rangeland, timber, minerals, watersheds, and wildlife, along with scenic, scientific, and cultural values.

Paleontological Resource: A site containing nonhuman life of past geological periods, usually in the form of fossil remains.

Public Land: Any land or interest in land (outside of Alaska) whose surface and/or subsurface is owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

Rangeland: Land used for grazing by livestock and big game animals on which the vegetation is dominated by grasses, grasslike plants, forbs, or shrubs.

Raptor: Bird of prey with sharp talons and strongly curved beak (e.g., hawk, owl, vulture, eagle).

Resource Management Plan (RMP): A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the U.S. Bureau of Land Management since 1980.

Riparian Area: A unique form of wetland that represents the transition between permanently saturated wetlands and upland areas. These areas exhibit vegetation or physical characteristics reflective of permanent surface or subsurface water influence. Lands along, adjacent to, or contiguous with rivers and streams, glacial potholes, and shores of lakes

and reservoirs with stable water levels are typical riparian areas.

Stream: General term for a body of water flowing in a natural channel, as distinct from a constructed channel such as a canal or irrigation ditch. Streams in natural channels and point sources, such as springs and seeps, are classified as either being perennial, intermittent, or ephemeral. These water regimes are defined as follows:

- *Perennial* — A stream or water point source in which there is an uninterrupted surface or subsurface flow of water. Perennial waters are directly associated with a water table in the localities through which they flow. These areas generally maintain a vigorous presence, or high potential for riparian vegetation.

- *Intermittent (= Semiperennial/ Semiephemeral)* — A stream or water point source in which the flow of surface or subsurface water is regularly interrupted for a period of days to months. Semiperennial sources have shorter periods of interruption, days to weeks, and semiephemeral sources have no-flow periods of weeks to months. These areas maintain a variable amount of riparian vegetation. The vegetation may become restricted to very limited and discontinuous areas. These areas are generally more sensitive to disturbance and excessive use.

- *Ephemeral* — A stream or water point source that flows only in direct response to precipitation. The channel or point of exit is permanently above the local water table. These areas generally cannot, nor do they have the potential to, maintain riparian vegetation.

Watershed: The total area above a given point on a waterway that contributes runoff water to the stream flow at that point.

Wetland: Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and that, under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wilderness Study Area (WSA): An area determined to have wilderness characteristics. Wilderness study areas are subject to interdisciplinary analysis through the U.S. Bureau of Land Management's land use planning system and public comment to determine their wilderness suitability. Suitable areas are recommended to the President and Congress for designation as wilderness.

Wildlife: All species of mammals, birds, invertebrates, amphibians, reptiles, or their progeny or eggs that, whether raised in captivity or not, are normally found in a wild state. Feral horses and burrows are excluded.

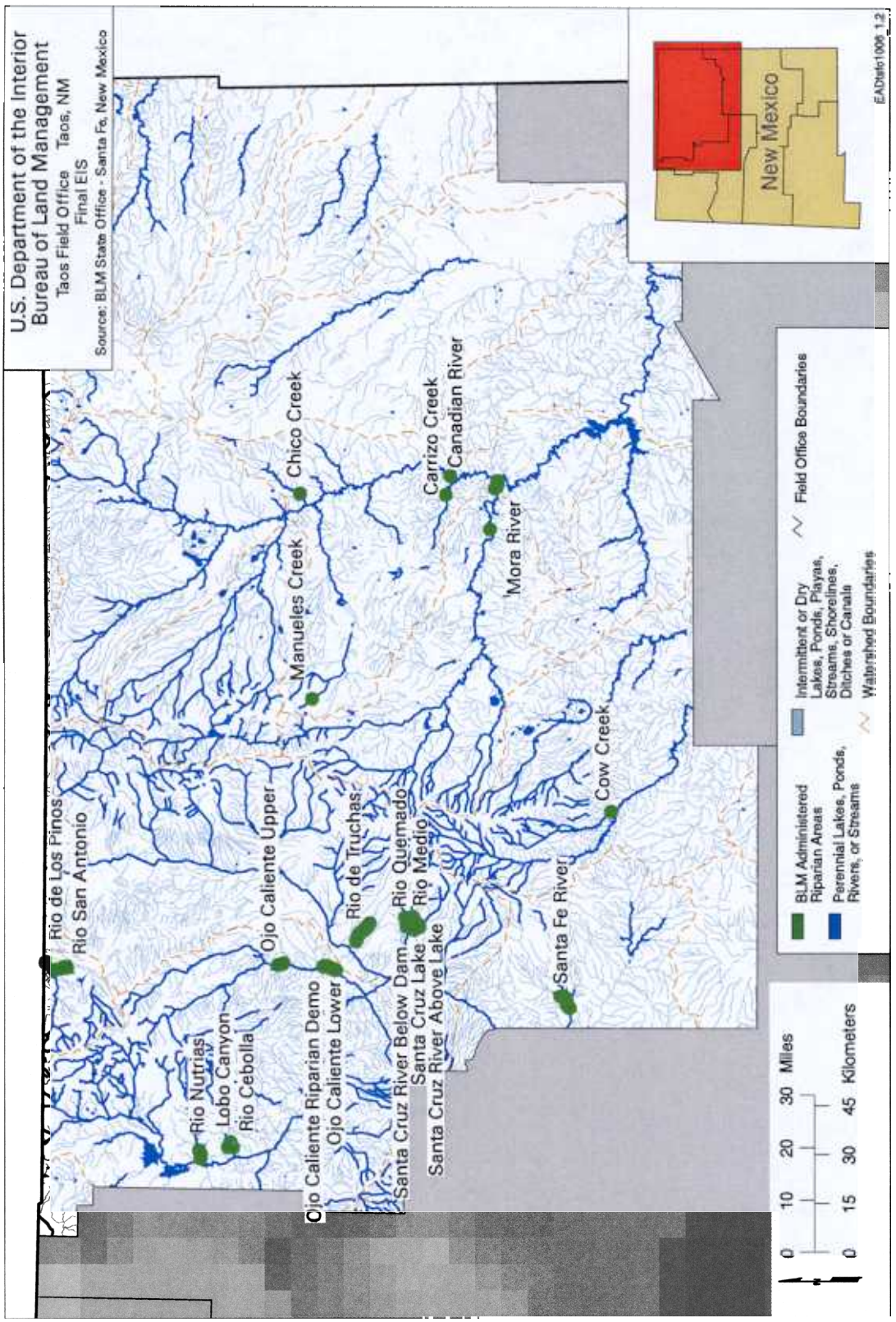

FIGURE 1.2 Taos Field Office Riparian Areas